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ON CERTAIN INTESTINAL SYMPTOMS AND FUNCTIONAL DISORDERS (HORSE).*

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WITHOUT begging the question, I think I may fairly claim that the papers which evoke the best and most profitable discussions at our quarterly gatherings, are those which treat in a concise manner on a subject of vital importance to the general and animal-owning public, or possess matter of prominent interest to us as scientific and practical men. To my mind, brevity of topic upon which discussion is to follow will continue to be appreciated more highly than long and exhaustive theses, until societies or the writers of papers decide upon having them printed and distributed to the members some little time prior to meeting for discussion. Of course, this assertion is made on the assumption—a justifiable one, you will admit—that one of the chief objects of veterinary medical societies is the meeting together of members for the ventilation of ideas, the interchange, of opinions, and the confirmation or negation of theories and facts. In giving expression to these views, I am aware that I lay myself open to the charge of infidelity to the cause I advocate, insomuch as my promulgation is one of precept rather than example.

Without desiring to be egotistical, let me here explain that I am now performing a duty which I promised to do at the next September meeting. Owing to unforeseen causes, the adjourned discussion on Mr. Hopkin's paper on "Roaring" has had to be postponed until September; hence, consequently, at the urgent request of our worthy president, I consented to introduce a subject for discussion at this meeting. Unfortunately, my leisure time has been so limited that I feel constrained to ask your indulgence in

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the errors of commission and omission that may creep into the following observations.

Constipation.

Ætiology.—The immediate causes may be summed up as: (1) Mechanical obstruction in some part of the intestinal tube; (2) Deficient peristaltic action of the intestinal muscular coat, probably due to impaired nervous excitability; (3) Deficiency in amount of fluids from defective secretion, or in some instances their excessive absorption. The first class of cases I may perhaps allude to hereafter. The other two may be associated with organic diseases, but frequently result from functional disturbance brought about by injudicious diet and want of sufficient exercise. It cannot be doubted that there are some horses predisposed to constipation, particularly those of a slow, lethargic temperament, and it is in this class of animal, subjected for a lengthy period to a diet consisting largely of dry hay of bad quality, and containing a great amount of ligneous matter, that we find some of the most obstinate cases of impaction of the colon.

Another not infrequent cause of constipation is a restricted supply of water or other fluids.

Treatment.—The treatment of constipation will depend upon the cause. If from dietetic errors, a change in food will be necessary. If from debility as a sequel to other organic disease, mineral and vegetable tonics, associated with nux vomica, will have the desired effect. If from paralysis of the intestinal muscular coat, greater care will be needed in treatment, and in the continued absence of pain plenty of time must be allowed for the intestine to recover tone, which will be best brought about by the administration of nervine tonics, rather than by large doses of strong cathartics. In these cases I have found efficacy from the exhibition of extract belladonna and nux vomica pulv. two or three times a day, along with walking exercise and a sloppy diet. Frequent enemata should also be employed.

Constipation in newly-born foals is a troublesome and occasionally dangerous condition. It is due to accumulation of the meconium in intra-uterine life, and inability to void it. In most cases enemata of warm water, soap, and a little castor oil are sufficient to relieve the loaded state of the rectum. In obstinate cases, accompanied by colicky pains and tenesmus, it may be found necessary to administer to the patient a dose of ol. ricini, in conjunction with tr. opii or chlorodyne, and when the retained meconium is very hard it must be removed by means of the finger. Some authorities state that this ought to be done prior to employing an enema. On the contrary, I have found an enema administered first aids the practitioner in scooping out the rectal

contents. In all cases of retention of the primary contents of the intestine, it is absolutely necessary that the dam's condition should be inquired into and a change in diet instituted. If found to have consisted largely of corn and hay, a liberal allowance of green food or a judicious quantity of roots may be given. The corn should be decreased, if not entirely prohibited, and the mare should be prevailed upon to drink considerable quantities of well-boiled oat-meal gruel. If it be found desirable to resort to therapeutic agents, magnes. sulph. in two to three-ounce doses should be given to the dam, dissolved in warm water and added to a sloppy bran mash. This may be repeated as often as found necessary.

Enteralgia—Intestinal Colic.

Ætiology.—Veterinarians usually speak of Colic as spasmodic and flatulent: both kinds are attended with irregular spasmodic contractions of the muscular coat. The chief causes are:—(1) Direct irritation of the bowels by improper or undigested food; cold water to drink when overheated; irritant or poisonous substances; retained fæces and foreign bodies or worms. (2) Organic diseases of the intestines; and the different forms of intestinal obstruction. (3) Reflex irritation, as from tumours or abscesses. (4) Morbid conditions of the blood. (5) Sometimes from exposure to cold, either generally or locally.

Symptoms.—The symptoms of intestinal Colic are usually quite characteristic and so familiar to us all that a detailed repetition of them here is unnecessary.

Treatment.—The first thing to be attended to is to find out, if possible, the cause of an attack, both by inquiry of the attendant and by a careful examination of the patient; having done this, remedies may be selected accordingly. The most controversial points in the treatment of spasmodic and flatulent Colic and Colic associated with impaction of the colon are the exhibition of purgatives, especially aloes, the employment of physostigmine and puncture of the colon.

I propose to review briefly the therapeutic agents I have found of greatest value in the treatment of the aforementioned varieties of Colic.

Aconite.—Fleming's tincture in doses of mns. vi., repeated every hour until pain is relieved, I have found very serviceable in simple spasmodic Colic, if given at the outset of an attack. It should be administered as a draught in from four to six ounces of cold water, and in the case of a horse known to be of unsound wind it is safer to give it in bolus. Where flatulence is present, combined with two to four drachms of ammon. carb. its efficacy appears to be enhanced. In the later stages aconite is of less value.

Belladonna and Opium.—These two agents are most valuable in the treatment of prolonged cases of spasm and impaction of the colon, given together, either in the form of tr. opii and belladon. ext. or their alkaloids, morphia and atropia, administered subcutaneously and frequently repeated.

Chloral Hydrate, in doses of from one to two or even three ounces, has in my hands proved successful in some cases of spasmodic Colic, but I doubt if it is a remedy which should be frequently repeated, or, if repeated, smaller doses ought to be given.

Aloes (Barbadoes).—From a perusal of the discussion at the meeting of the National Veterinary Association held last year on Mr. Fred Smith's able paper on "Some fatal diseases of the digestive canal of the Horse"—a paper, by the way, well worth studying—I gather that of sixteen members who took part therein ten spoke strongly in favour of purgatives—presumably aloes—in the treatment of impaction of the large bowel, two spoke in a somewhat qualified manner, and four made no allusion to the treatment of this form of intestinal obstruction. Not long ago the aloetic treatment of Colic and impaction had no stauncher supporter than myself, and if an ordinary antispasmodic dose failed to give relief I immediately had recourse to aloes. Of late I have employed this drug less and less, and if my success continue I feel I shall be justified in discarding it altogether as a therapeutical agent in these cases. A full dose of aloes in any case, should its purgative action ensue, necessarily entails a cessation of work for three or more days, and in instances where very large doses had been given I have seen effects which have nearly caused death from super-purgation. On the whole, therefore, I agree with Mr. T. W. Cave in his treatment of impaction of the colon, as described in a communication to the VETERINARY JOURNAL of April last. The primary object in the treatment of intestinal Colic is the relief of pain and relaxation of spasm, and if impaction be present I believe it can be got rid of by the frequent use of copious enemata, walking exercise, and a proper diet.

In doubtful cases of volvulus, intussusception, ruptured bowel or stomach, I look upon the administration of aloes as positively harmful.

Ol. Terebinthinæ.—In cases of flatulent Colic, or so-called grass Colic, in doses of two ounces or more, combined with ol. lini, it is often of great service, and through its antiseptic properties prevents further fermentation of the contents of bowel or stomach.

Physostigmine I have used in Colic impaction, but not sufficiently often to enable me to give an opinion as to its value, and I am afraid, after reading the communication on this drug by Messrs. Smith and Rutherford, in the April number of the VETERINARY

JOURNAL, in doses not large enough to induce the desired action. Others there are who have given this drug an extended trial, but have not met with that success achieved by the authors of the communication referred to; and as on their own showing its action is violent, and particularly so when combined with pilocarpine, its use should be resorted to with care and discrimination by the veterinary practitioner.

Puncture of the colon with the improved trocar and cannula in cases of acute tympany ought always to be performed, for if permanent relief be not obtained, no ulterior consequences of importance are likely to ensue from the operation itself. To be successful, the puncture should be made at an early stage of distention, and repeated if the tympany return.

Too much cannot possibly be said of the great value of copious and frequent enemata, the application of moist and dry heat to the abdominal walls and lumbar region, and the employment of friction and sinapisms.

From a fairly extensive experience of enteric diseases and the recourse to *post-mortem* examinations on all available occasions, I am convinced that cases of true Enteritis, *i.e.*, uncomplicated inflammation of the muscular submucous and mucous coats of the intestines, except as due to irritant poisons, are extremely rare in the horse; that so-called Colonitis, or Apoplexy of the colon, seldom, if ever, occurs; and that the morbid condition mistaken for this disease is on careful *post-mortem* examination found to be due to the double colon having turned on its short axis, near to its collateral attachment to the cæcum, and thus become strangulated and gangrenous.

In concluding these brief and somewhat disconnected observations, allow me to point out a danger into which many of us unwittingly at times fall; it is the mere routine treatment of particular diseases, or the too implicit reliance on the teaching and experience of others. These mistakes should be avoided, and each individual case ought to be considered on its own merits; for even the same disease may require very different treatment under different circumstances, and therefore the practitioner should be able to bring his own knowledge and common-sense to bear upon the matter, and to use his discretion in varying the measures employed. Before commencing treatment, an endeavour should always be made to realize distinctly what it is intended to accomplish by its aid, and what indications are afforded as to the measures which require to be adopted. In no class of cases are these admonitory comments more applicable than in functional derangements and diseases of the alimentary tract.

TUBERCULOSIS OF THE FOURTH CERVICAL VERTEBRA, CAUSING PARALYSIS.

BY W. CAUDWELL, F.R.C.V.S., WORKSOP, NOTTS.

On the 5th June I was required to examine a cow belonging to Mr. Sudbury of this town. She had been purchased by him about a month before, and was an excellent milker and in good condition. Upon turning her out of the shed into the field adjoining, I found that she was lame of the left fore limb, there was an inability to extend it freely, and a swelling of the knee. I was therefore at first disposed to attribute the lameness to rheumatism, but on further examination I found that she could not depress her head to graze, but carried it stiffly, and any attempt to elevate her head or turn it to either side seemed to cause pain. A careful manipulation of the neck failed to discover anything to account for the rigidity, although I felt pretty certain that there was some injury or disease of the basement structure, or of the spinal cord. Her pulse, temperature, and respiration were normal, and continued so, and she could feed well out of the crib.

Treatment.—An aperient drench was first prescribed, and on turning her head to the right side to administer it, she suddenly fell, but soon got up again. This, as will presently be seen, must have been due to pressure on the cervical portion of the spinal cord. After the bowels had responded to the aperient, nervine tonics were exhibited twice a day, and I applied a strong blister to both sides of the neck.

Partial motor paralysis of both fore limbs gradually progressed, the legs were abducted, and when she was made to move, knuckling over at the fetlocks took place, and there was fear of her falling, so on the fifteenth of May she was placed in slings, and kept up during the day and let down to rest every night.

My prognosis was very unfavourable, but as the animal fed and ruminated well, gave a large quantity of milk, and did not emaciate to an appreciable extent, I induced the owner to keep her a little while longer.

On May 24th the cow was slaughtered, she having become quite unable to rise.

Post-mortem Examination.—On examining the lungs a few tubercles were discovered, and the bronchial lymphatic glands also were in a tubercular condition. With these exceptions the organs of the thorax and abdomen were perfectly normal. On examining the neck, after dividing it, I found a circumscribed yellow patch, which proved to be a tubercular condition of the superior portion of the fourth cervical vertebra. The increasing tubercular deposit had produced a marked diminution in size of the spinal canal at this point, and consequent pressure on the spinal cord.

GLOSSINA MORSITANS OR TSETSE FLY.

BY KAY LEES, F.R.C.V.S., ARMY VETERINARY DEPARTMENT.

On the fifth of December, 1881, I received orders to proceed, as soon as possible, to the Naga Hills, where disease had broken out amongst the transport animals.

The Naga Hills are situated on the north-east of Assam, bounded on the south by the North of Assam, on the north by the Himalaya Mountains and Thibet, on the east by Upper Burmah and China, and on the west by India. Kohima, which is the chief station on the Naga Hills, forms the furthermost post on the north-east frontier of India.

As I was at the time stationed in the Punjaub, I had to proceed by train to Calcutta, and thence by inland river steamer up the Brahmapootra, travelling by this means ten days, and halting during the night at various ghauts, until I reached T——, a short distance south of Debrighur, in Assam, where I disembarked. I then proceeded to Golaghat, which is about twenty-five miles inland. This station forms the headquarters of the Commissariat and Transport Department for Assam and the Naga Hills. After staying there a short time I left for Nichuguard, the head transport office on the line of communication between Golaghat and Kohima. The route lay through a dense jungle, and was seven days' marching distance from Golaghat.

The road consisted of a broad tract, fairly well made, but was in a wretched condition, owing to so much traffic on it and the injury produced by heavy rains; and besides, there seemed to be little or no artificial or natural drainage, which all contributed to the road being in this condition. The tract was winding and hilly, with severe gradients at several places, and in consequence at some parts it was almost impossible to proceed. The pack elephants, even, had the utmost difficulty to cross some places, which were absolutely dangerous, owing to the fact of the bed of the streams consisting of clay, and in other parts of marsh or bog. At some of the low-lying parts of the road boughs had to be placed transversely and very close together, so that animals could travel with a firm footing and to prevent them sinking. If this method had not been adopted, it would have been an utter impossibility to get the elephants to proceed, as their instinct is so acute and suspicion so great that, when approaching any doubtful place where the footing is at all insecure, nothing on earth will persuade them to go on. It is most interesting to observe with what caution they explore with their trunk any portion of ground they have the slightest doubt about.

On the way from Golaghat to Nichuguard I found every

description of game in abundance, affording most excellent shooting. The jungle was so dense and enclosed at some parts, that, combined with the gases given off from decaying vegetable matter, it interfered with free respiration.

The climate was hot and moist, such as is suitable for the growth of tea. The rains continue from the fifteenth of March to the middle of June, with occasional heavy storms during these months—so much so as to cause great inundations, covering large tracts in the forest with swamps, and doing great damage to the roads.

The camps consisted of a clearing in the jungle, the felled trees being utilised for the construction of huts, which were built upon piles, and one end of which was well sunk into the ground, on which huts were erected at an elevation of about sixteen feet, thus affording some protection from malaria, etc. Some of these huts I found almost uninhabitable, and infested with every conceivable description of vermin.

I was fortunate in taking some provisions with me from Calcutta, such as Kopp's soup, tinned meats, flour, etc., as I could only procure rice and weeviled biscuits from the bazaars. The road from Nichuguard to Kohima is also extremely hilly, being over the Samaguting Hill, and consequently the most difficult and trying for baggage animals. Owing to the steep gradients, saddle-galls were numerous. The climate at Kohima is fairly healthy. The baggage animals consisted of elephants, ponies, and mules bullocks being used only for a short distance out of Golaghat, where the roads were good and fairly level. The baggage animals were used to convey rations, etc., to the native troops, chiefly the Assam regiments which were stationed at Kohima, but few men being on the line of communication. This duty was a very heavy tax upon the Commissariat and Transport Department, in particular during the Naga Expedition. I met the transport officer at Nichuguard, which was the head transport office on the line of communication, and he informed me of the heavy mortality amongst the ponies and mules which had occurred from year to year, the last season being most severe.

The disease appears to have been most fatal amongst the mules and ponies between March and June. There was no proof of what the actual disease was, as all the animals at work the previous season were dead. I was, however, inclined to believe that it was in a great measure attributable to overwork, travelling on bad roads in an unhealthy climate, feeding on indifferent and innutritious food; (the distance these animals had to march, with a load of 250lbs., was seven miles over the Samaguting Hill, and to perform the same distance unloaded on their return;) to a want of care, there

being only one syce (native groom) for every three ponies and one grass-cutter to every six ponies or mules, combined with the fact that at least twenty-five per cent. of the establishment during the rainy season were down with fever, dysentery, etc. I also gleaned that there was a great difficulty in obtaining green fodder after the month of March, and this difficulty must have been obviously increased by a reduction of establishment through disease. Many deaths amongst the animals were undoubtedly due to falls from the roads, which are extremely narrow at some parts, down the hill sides.

Saddle-galls no doubt accounted for many deaths. The saddles become loose and rotten with the rains, and slip on to the shoulders or loins while the animals are travelling up and down the uneven roads; and from what I could learn, if a wound or abrasion of the epidermis of any kind occurred after the fifteenth of March it was almost impossible to cure it, owing to the part becoming fly-blown and afterwards filled with maggots, or ulceration setting in of a malignant nature. The main mortality, however, was brought about by the attacks of the *tsetse fly.*

As this fly does not appear to have been previously observed in India, I especially wish to bring it to notice, and will endeavour to give a brief description of it.

This insect is about the size of a common house-fly, but of a dark brown colour. The after part of the body has always three, and very often four yellow bars across it; *these marks or bars are very characteristic.* The proboscis is divided into three portions, the middle one being the longest, and projects in a straight line from the head. When on the wing, the fly gives a very peculiar buzz, which would cause most people instinctively to evade it. It is remarkably alert.

I had the opportunity of seeing this insect several times in the jungle a few marches from Nichuguard, and when I was informed, on arrival, that nearly all the ponies and mules had died of debility or a gradual wasting away of the body, I naturally associated it with the disease. Symptoms of the disease were: A gradual but persistent wasting of the animals affected; in fact, they became so emaciated that one might be readily led to suppose that they were dying from starvation. They appear to have been bitten by an insect, as on one or more places of the body there is itchiness, which is followed by the formation of an ulcerating sore of a malignant character. But one peculiarity of the ulcer is, that it has but little tendency to spread or to heal. The ulcers are about one inch in diameter, and occur on the fetlocks, knees, shoulders, hips, etc. Swellings occur between the forearms and extend along the floor of the abdomen. Visible mucous membranes have the diag-

nostic paleness of anæmia. Occasionally there is a muco-purulent discharge from the eyes and nose. Muscular Atrophy is more or less rapid, but one circumstance which I particularly noticed, was that animals in a plethoric condition much more rapidly succumbed than those in an opposite state of health.

Comparing the above symptoms with those described in Dr. Livingstone's work, and having personally seen the insect, I have not the slightest hesitation in attributing the mortality amongst the transport animals on the Naga Hills to the tsetse fly.

Remarks.—Several of the ponies and mules at Golaghat, on the plains, appeared in good condition, and worked well there; but in a short time after being at Nichuguard or on the line of communication they never did a day's work, but died of debility, which was in all probability due to the attacks of this deadly fly. The discharge from the eyes and nose was of such a suspicious character that the transport officer considered that three ponies affected were suffering from Glanders, and accordingly had them destroyed. I found the mortality was greatest during and shortly after the rains, and the fly at this period was most prevalent. The transport animals at this time were picketted in the open; therefore the fly had every advantage of being able to get at his victims.

No cases, so far as I could learn, after the fullest inquiry, had ever been known to recover; therefore we may presume that, in the absence of any scientific treatment, the poison of the fly is an extremely deadly one. Of course, when speaking of the deadly nature of the poison in this instance, it must not be forgotten that, at the time so many of these transport animals died, they were fed upon whân—rice in husk—which is by no means a food-stuff suitable for animals undergoing hard work in a bad climate.

It is stated by Dr. Livingstone that this fly is found where there are elephants, which quite bears me out, for elephants abound in Assam—in fact, this country is the principal source of supply of those animals for the Government of India.

Horses are most susceptible to the poison of the fly; this was so well known that officers would take horses of no value to these hills when stationed there, as it was a well-known fact that they never lived more than two or three seasons.

During my investigation I was unable to trace any history of Anthrax, Surra, Bursauti, etc., which would account for this mortality. The remedies which I suggested to prevent the further loss of these baggage animals were: Entire removal of all transport animals during the season when the fly was most prevalent to Golaghat, on the plains; duties to be performed during the healthy months; coolie labour to be substituted over the Samaguting Hill; increased diet of a nutritious nature; improvement

of the roads; increase of establishment, as regards syces and grass-cutters; two salootries or native farriers to attend to sick and lame animals.

The above suggestions, I am pleased to be able to state, on hearing from the transport officers nearly two years afterwards, being acted upon, have resulted in almost eradicating the pest.

For the information of those who have not had the opportunity of reading Dr. Livingstone's work on South Africa I append the following, which refers to the tsetse fly:—

"We had come through another tsetse district by night, and at once passed our cattle over to the north, which, though only fifty yards distant, was entirely free from the pest. This was the most singular that we often saw the natives carrying over raw meat with many tsetse upon it. This insect, Glossina morsitans of the naturalists, is not much larger than the common house-fly, and is nearly of the same brown colour as the honey bee. The after part of the body has three or four yellow bars across it. It is remarkedly alert, and evades dexterously all attempts to capture it with the hand at common temperatures. In the cool of the mornings and evenings it is less agile. Its peculiar buzz when once heard can never be forgotten by the traveller whose means of locomotion are domestic animals, for its bite is death to the ox, horse, and dog. In this journey, though we watched the animals carefully, and believe that not a score were ever upon them, they destroyed forty-three fine oxen. A most remarkable feature is the perfect harmlessness of the bite in man and wild animals, and even calves, so long as they continue to suck the cows, though it is no protection to the dog to feed on milk. The poison does not appear to be injected by a sting, or by ova placed beneath the skin, for, when the insect is allowed to feed freely in the hand, it inserts the middle prong of the three portions, into which the proboscis divides, somewhat deeply into the true skin. It then draws the prong out a little way, and it assumes a crimson colour as the mandibles come into brisk operation. The previously shrunken body swells out, and if left undisturbed the fly quickly departs when it is full. A slight itching follows the bite. In the ox the immediate effects are no greater than in man; but a few days after the eyes and nose begin to run, the coat stares, a swelling appears under the jaw and sometimes at the navel, and, though the poor creature continues to live and graze, emaciation commences, accompanied by a peculiar flaccidity of the muscles. This proceeds unchecked until perhaps months afterwards, purging comes on, and the patient dies in a state of exhaustion.

"The animals which are in good condition often perish soon after the bite is inflicted, with staggering and blindness, as if the

brain was affected. Sudden change of temperature produced by falls of rain seem to hasten the progress of the complaint, but in general the wasting goes on for months. When the carcase is opened the cellular tissue beneath the skin is found injected with air, as if a quantity of soap bubbles were scattered over it; the blood is small in quantity, and scarcely stains the hands in dissection. The fat is of a greenish yellow colour and of an oily consistence. All the muscles are flabby, and the heart is often so soft that the fingers may be made to meet through it. The lungs and liver partake of the disease. The stomach and bowels are pale and empty, and the gall-bladder is distended with bile. These symptoms seem to indicate poison in the blood, the germ of which enters when the proboscis is inserted.

"The mule, ass, and goat enjoy the same immunity from the tsetse as man and the game. Many large tribes on the Zambesi can keep no domestic animals except the goat, in consequence of the scourge in that country. Our children were frequently bitten but suffered no harm; and we saw around us numbers of zebras, buffaloes, pigs, pullahs and other antelopes, feeding quietly in the very habitat of the fly. There is not so much difference in the natures of the horse, zebra, buffalo, ox, sheep, and the antelopes as to offer any satisfactory explanation of the phenomenon. Is not man as much a domesticated animal as a dog? The disgust which the tsetse shows to animals' excreta is turned to account by some of the doctors. They mix droppings of animals, human milk, and some medicines together, and put some on the animals which are about to pass through an infected district. This though a preventative at the time is not a permanent protection. Inoculation does not afford immunity, as animals which have been slightly bitten in one year may perish by a greater number of bites in the next. It is probable that with the increase of flies the game will perish, as has happened in the south, and the tsetse, deprived of its food, may become extinct with the large animals. The ravages it makes are sometimes enormous.

"Lehlunane once lost nearly the entire cattle of his tribe, amounting to many thousands, by intruding unwittingly upon the haunts of this murderous insect. The left bank is frequented by the tsetse and elephants, and I suspect that some connection exists between these two, as the Portuguese in the district of Tete imply when they call it the elephant-fly."

ABNORMAL RETENTION OF THE FŒTUS.

BY JAMES HUNTER, V.S., SKENE, ABERDEENSHIRE.

HAVING seen an article in the May number of the VETERINARY JOURNAL, by Mr. McGavin Montgomery, on the above subject, lamenting his unsuccess in operating, and soliciting an account of the experience of some of its readers in similar cases, and a considerable number of protracted bovine fœtal retentions having come under my notice and supervision, I may be allowed to communicate a note or two in point, with a very few general remarks. Recently, at Rogiehill, the largest dairy farm in Skene, I found a fine cow about two o'clock one morning, straining violently and bellowing out terribly—by the way, I rather like these crying cases. I was told her time was up, with three weeks of grace, and that she had been in calving pains, more or less, for a few days past, but had now become vicious and must be calved. On exploration I found no dilatation of the os uteri, and the constriction was so tense that I could scarcely suffer the pain by my index finger being forced in through the ring. I gave it as my opinion that she would require other three or four days before she could be calved with safety, and simply prescribed periodical lubrications of the vaginal passage and os uteri with vaseline and fresh lard or butter, and to have patience and not attempt to forcibly take away the calf too early. I was sent for on the fourth day, but they had her calved before my arrival. Next morning she went down with Parturient Apoplexy, but made an exceedingly satisfactory recovery, and is said to be the most useful dairy cow on the premises.

At Hatton, Kingswells, Aberdeen, I found a cow one night with the following history:—Sober appetite; had not been thriving well or looking very fresh for some time; six weeks past her calving time; had observed slight pains for about a fortnight, and that she had been in earnest calving for the past twenty-four hours. They had got a neighbouring farmer, a famed calver, but he had recommended them to send for me. On examination I found the usual constriction in such cases, and stated she would require to continue in labour a few days more, and then she might succeed. However, we had a bad state of the system and general debility to contend with, and ordered eggs and good milk, with six or seven quarts of London stout per diem, and pretty frequent manipulations with innocent oleaginous substances. After three days, what might be termed in size a monster calf was, with some difficulty, extracted, which did well, the cow remaining partially invalided for six weeks or so. Ultimately quite recovered.

At Bridgend, Alford, a few years ago, I found a black poll, of

the Tillyfour herd, one of the finest cows in the north—for that matter, in the world, I dare say—foaming at the mouth, roaring out, climbing the wall, and straining violently. The bailiff said she had been in calving for a considerable period, and he had tried her; the womb was shut and would have to be cut. I said, "Indeed! Why do you think so?" "Oh," he said, "there was a cow the very same at the last place I was at, and the vet. came and cut the womb." "Well, what was the result?" "Oh, he calved her." "Well, how did the calf do?" "Died next day, and the cow died about a week after." This cow was of a very sensitive nature, and on exploring her she pretty quickly gave me to understand I had very sensitive parts about me also—my shins. The constriction here, although very tight, I did not consider of an alarming character, and she being healthy and hardy, I advised them to let her alone, and nature in this case might succeed in her own good time. Forty-eight hours afterwards, the bailiff, on looking into the byre after dinner, found a dark beauty lying behind its spirited dam. They were left to their own endearments, and both did well.

Remarks.—These three cases are selected almost at random. All the most successful ones of a similar nature that have come under my notice were treated in a similar manner: Avoiding irritating and poisonous substances, rough handling, scratching, or operation in any form, with the exception of gentle manipulations with a large amount of innocent, oily material, and generous stimulating regimen up to the time of relaxation. In other forms of constriction of the os uteri, etc., where there is a cachectic, rheumatic, etc., diathesis, when the citadel of healthy vitality seems to be undermined and malnutrition rampant, the professional man needs to discriminate in undertaking treatment of such rickety subjects at so late a stage as the calving season, as he seldom gains much honour thereby.

"KHOOJLEE"; OR, TROPICAL PITYRIASIS.

BY R. W. BURKE, M.R.C.V.S., A.V.D., JUBBULPORE, INDIA.

In no department has veterinary progress been shown more conspicuously than in what is usually termed Cutaneous Pathology. This has undergone a complete revolution in England, on the Continent especially, and in India to some extent, during the last few years. The experience of recent years has caused an entire change in the ideas regarding treatment which was formerly recommended in this class of cases. In the ages when mysticism in its varied forms prevailed, although we find glimpses of the

knowledge that nature herself was generally expected to do all that was necessary, no practitioners were bold enough to hazard their reputation by acting up to this belief, but almost invariably resorted to some application and favourite internal remedy to give it due effect. To the German practitioners in a great measure is due the credit of having broken through these bonds, and raising the study of skin diseases in animals, thus paving the way for modern improvements in their treatment, on a level with the other branches of medicine.

From the earliest times the above disease has been described as an enzoötic affection, and internal remedies were prescribed. Spinola (*Speciellen Pathologie*, 1863) and other writers considered the cause to be some constitutional defect. Haubner attributed it to digestive derangements, and others, again, thought it was due to the itch-scab. Recently, Haselback (*Zeitschrift für Microscopie und Fleischbeschau*, 1884) has observed it in ten per cent. of the whole of the Polish horses, and he regards it as a special affection of the hair, attended by an adhesive discharge. Formerly a *false* and a *true* variety were described, which led to great confusion. "It is proved conclusively," says Professors Friedberger and Fröhner (*Lehrbuch der Speciellen Pathologie und Therapie der Hausthiere*, 1886) "to owe its origin simply to penetration of dirt, grit, lice, etc., into the hair-roots."

There is perhaps no subject in Indian military veterinary practice more interesting, and on which facts are more scanty, and its nosology less certain, than this, which must be my only plea for writing these notes. The disease, although long recognised in the human subject, has only recently attracted notice in the lower animals, and does not find a place in the new nomenclature of diseases issued for guidance of veterinary officers in India. Since my observations were published in my Annual Veterinary Report, 1883, and the VETERINARY JOURNAL, 1884, veterinary surgeons have described this affection as more or less prevalent throughout India, but especially during the hot weather, when the function of the skin is found to be normally active, and in a manner predisposed to disease.

The familiar cutaneous affection which is called "*Khoojlee*" in the horse is so prevalent in this country, and the disease so well marked in most cases, as to call for a special record for itself, and the following statement, based on a careful personal inquiry, will, it is hoped, fairly describe its most salient features, and convey, at the same time, some idea of its history and progress.

What is *Khoojlee?* Is it erythematous, or papular, or squamous, or vesicular, or pustular, or tubercular in its origin? Or is it a heterogeneous combination representing the diverse lesions or

types of disease of the skin that jostle one another in Indian nosology, and well known in all reports as so-called "Eczema" of the horse? It has not, I think, been settled whether the term Khoojlee is, or is not, properly defined; but we understand that there is no restriction here: it is used in a general sense, and applies to every form of skin disease which is attended with *itching*. If this is the case, it is a lamentable illustration of the urgent need for more precise definitions in this direction, and for the incorporation in the new nomenclature of diseases of the lower animals of a stringent rule requiring that all our diseases of the skin shall be properly designated, and their characteristics clearly differentiated. It is not now desired to enter into a consideration of all the diseases of the skin in which Khoojlee is a symptom: the disease under consideration goes by that name. In this paper we will invite our readers' attention to the subject of Tropical Pityriasis, or so-called "Khoojlee" of the horse.

In practice, veterinary officers have sometimes to rely on the nomenclature suggested by *salootries* and others in India, but the natives are not accustomed to name diseases according to scientific principles, and are thus not quite at home with Europeans as instructors in native disease.

Some veterinarians appear to be stirred over the question of a proper name for this, the most prevalent form of skin disease affecting the horse in India. The necessity for such a name will be apparent; but some are exercised over the special designation, preferring the term "Eczema" to Pityriasis suggested by ourselves (1. Annual Veterinary Report, 1883; 2. The VETERINARY JOURNAL, 1884; 3. The *Veterinarian*, 1885). I need not therefore re-state my reasons for considering this disease to be quite distinct from Eczema, except that a prevalent use of this term "Eczema" in England gives it special importance, where the occurrence of Pityriasis appears to be infrequent, if not very rare in the horse. It is possible that India is a special habitat of the disease, and especially so in the hot weather, when the function of the skin is normally active, which sometimes causes the disease to assume an enzoötic form. It is, moreover, important to note that this disease is chiefly confined to the more hairy parts, or parts fairly covered by hair; for instance, the disease never spreads to the under surface of the tail, although it attacks every other portion of it supplied with long hair. The disease, moreover, originates in small papules, the cuticle covering which dies from insufficient nutriment, and desquamates in small bran-like scales, and is attended with heat and considerable itching. The Germans also speak of it as "bran," or "flour eczema." There is no discharge present in this disease, nor vesication as in Eczema. Röll

says: "In this skin disease the epidermis peels off in small scales like those of bran. The disease attacks the horse principally on the head and sides of the neck, along the course of the mane and roof of tail, but occasionally all over the body. In cattle it attacks the whole surface of the body, and leads to changes in the structure of the skin" (*Lehrbuch der Pathologie und Therapie der Hausthiere*, 1885, art. "Pityriasis"). From excessive rubbing, for the parts attacked are particularly itchy, the exudation of serum, or of pus-like fluid may take place on the surface of the skin, which, though not a special feature of the disease, is a frequent accompaniment of it, and is one reason why the disease has been so often mistaken for Eczema. Pityriasis, moreover, selects for its attack the parts covered with the longest hair, even in man (Tanner's *Practice of Medicine*, art. "Skin Diseases"), which is what might be written in regard to the disease seen in the horse, and to which the common designation of "mane-and-tail" disease has been given, owing to the mane and tail being the parts most commonly affected. Again, the exudation may cause the scales to adhere together, forming larger scales; hence the liability of the disease in its latter stages to be mistaken for Psoriasis, from which it is distinct.

Semiology.

Small papules are noticed to develop themselves along the crest and about the root of the tail, on its dorsal aspect, and in due course desquamation of the cuticle ensues about each papule, from which minute white scales are regularly shed; and we have thus eventually produced a surface of renewed desquamation, attended by fresh developments and increasing irritation, with its results—extension of the process into the corium and subcutaneous connective tissue, which are sometimes also implicated, owing to secondary inflammation. The latter is only a complication, however, and furnishes no clue to the solution of the true pathological change found set up, which is, in its inception, distinctly superficial in character and amenable to proper treatment. A prominent and not the least troublesome feature of the disease is prurigo, which cause the subjects of it to rub themselves against adjacent articles, producing secondary symptoms of inflammation—heat, pain, swelling, abscess, and sometimes also permanent induration of the skin. The crusts, which are at first small, scaly, and transparent, become during the latter stages of the disease, larger, more opaque, and even adherent from admixture with inflammatory products. The hairs also, becoming involved and matted together, soon fall off, which is especially noticeable along the course of the mane and tail,

in the latter situation producing the condition commonly known as "rat's tail." Owing to the presence of long hair about these parts, the disease frequently escapes detection in the early stages, it being seldom noticed until, through rubbing, changes in the hair-papillæ and hair take place. The latter becomes at first thinner, curly looking, and, owing to its thinness and irregularity, allows more freely of the passage of dirt and filth of all kinds, which gives rise to inflammatory changes leading to depilation of the hair, sclerosis, etc. Where the disease has become chronic, the hairs generally assume a coarse appearance.

Complications.

I have seen so many cases of this disease each summer, for several years, that I feel warranted in giving a strong opinion that any treatment to be useful should be early applied, otherwise the disease tends to assume a chronic type, and will then prove rather troublesome; sclerosis of the skin and subjacent connective tissue may follow as a remote termination, and more particularly permanent induration of the crest, which is often produced as a result of certain heroic methods of treatment in vogue, which in a certain percentage of cases proves at least of diagnostic value, and heralds an attack of the disorder in the following year.

2. One of the results of its action on the hair is evidenced in the undue coarseness of that appendage, which is specially characteristic of this disease.

3. Another remote, though not infrequent result, is an apparent greyness of the hair noticeable in small spots along the course of the affected skin. These latter changes are, as we have seen, dependent on inflammation, causing irritation of the hair-bulbs.

4. It cannot be too strongly urged that *recurrence* in many cases also depends, to a very large extent indeed, upon how they were first dealt with.

5. In some cases the disease spreads all over the body, and leads to great emaciation.

Etiology.

Climate has a direct exciting and predisposing cause, as in the hot weather in India, when the kidneys are inactive, and the skin suffers from hyperæmia due to compensatory action. It is clear climate has a more or less direct influence upon the prevalence of this disease, which appears only during the hot weather and rarely in the winter, and is practically unknown or infrequent in colder climates, as in England, where veterinary surgeons seldom witness it, at least as a prevalent disease in the horse. A curious confirmation of this observation, the influence of a warmer climate,

is had in the fact of the disease being familiar enough in the warmer parts of Europe, although it is comparatively rare in England.

2. Natural dampness of the air, as during the rains in India, which causes maceration of the epidermis, and affects normal secretion of the skin (excessive perspiration), which in the sheep is one of the chief causes of skin disease in all its forms.

3. Local irritation connected with improper grooming, collection of dirt, of lice and ticks, etc.

4. An analysis of the urine of animals suffering from this disease showed a great preponderance of salts. Has the brackish quality of the water found in many districts in India, which is supplied to the horses, anything to do with the prevalence of this disease? We know that many salts exert a most marked action on the skin, as for example, iodine and bromine, producing characteristic eruptions; and inquiry may tend to show that this law may be still further extended in cutaneous pathology.

Pathological Anatomy.

The disease, in its origin, is superficial, and seldom or never implicates the *cutis vera* deeply, until the parts are rubbed by the animal in consequence of extreme prurigo, when subcutaneous effusions and other inflammatory lesions, leading to various changes in the structure of the skin, develop as a secondary process, but quite distinct from the primary disease. Changes in and around the hair follicles, such as have been described by Dr. George Thin, of London (the Veterinary Journal, July, 1879, p. 55), and noted by us in several cases we have examined, may then be detected, together with other changes associated with the derma, leading to depilation of the hair, to sclerosis, etc., which may be seen commonly characterising the latter stages of the affection. But, in order to arrive at its correct pathology, examinations should be made of the skin, more especially in an early stage of the disease, so as to recognise the specific lesions, which, so far as my own examinations lead me to say, consist mainly in cell proliferation confined principally to the deeper layers of the epidermis. This proliferation is doubtless a result of some constitutional irritation, which explains the consequent desquamation and shedding of the cuticle in small scales, due to improper nutrition, and which is so important a feature in this disease. When the parts are violently rubbed by the animal, or if irritant dressings have been used, then changes in structure may be detected in any part of the skin on microscopical examination; thus, changes in the corium, in the hair follicles and sebaceous glands, and in the subcutaneous connective tissue take place as the result of irritation, and may be characterised as *hypertrophic*. The disease

examined generally shows in the field of observation epithelial cells, fibrils, granular particles of pigment, besides tissue shreds and other inflammatory products developed in the process of secondary inflammation.

Treatment.

Pityriasis in the horse would seem a comparatively trivial ailment in England, which, under ordinary circumstances, would soon get well, but in the same class of patients out in India it sets up a disease of skin which almost defies treatment for several months in the year. Those who are engaged in the study of diseases of the skin in our animals in India will have come across cases of this disease which remain unrelieved, or at any rate uncured, by any local application, but which readily recover by the internal administration of medicines, and, as I have found, local blistering over the kidneys. In the treatment of chronic cases I have found nothing to equal the value of local blistering over the region of the kidneys. This treatment has been followed by rapid recovery in several cases, when all local applications to the skin and the internal administration of medicines had failed. It probably acts in two ways, viz., first, by rousing the kidneys to increased action, promoting diuresis and relieving hyperæmia of the skin; and secondly, by directly stimulating the nervous system through its action on the spinal cord, and the good effects produced may be purely of neurotic origin. I do not consider it necessary or prudent to have recourse to blistering in every case of skin disease as a routine treatment, but adopt it in neglected and chronic cases only. Observing its action on the kidneys, I was led to try the use of strophanthus in cases of this disease, with much benefit. Combined with local blistering over the kidneys, the internal administration of strophanthus in chronic affection of the skin in the horse proves very useful, because, as a diuretic, it is probably second to no other agent with which we are acquainted in practice, or which is more rapid in its action than strophanthus given in the form of tincture in repeated doses.

A partial cure is often effected by the local applications of many favourite remedies employed in rotation; by thorough cleansing of the skin with soap-stone (*reetáh*), or with soft soap and water every other day; and by keeping the animal on low diet. None of these, however, can do more than mitigate the trouble, and the probable ill-effects of such haphazard treatment and the danger thus incurred is proportionately enhanced by the fact that many of the older cases of previous years under this treatment are practically apt to suffer from a state of disease which may be designated as chronic, if not incurable.

Among the local applications employed in the treatment of this disease I may mention those of petroleum and *cheerpine* oil, which have proved most efficacious in my hands; and, in a minor degree, kerosine oil. We may be quite sure that the good effects produced by these agents are dependent upon some product of tar present in them, which is so beneficial in skin disease in general.

Sir Erasmus Wilson some years ago pointed out that tar used in skin disease in man immediately relieved all irritation; and Mr. Oliphant, writing on the properties of petroleum in skin affections of the horse, in a private cover, under date 5th Nov., 1887, says that "he never knew it fail to cure a case, either in the acute or chronic form."

Some persons believe that, with the advent of the cold season these cases get well of themselves, and without treatment. But this is an error, and the source of recurrence and non-recoveries innumerable. If we examine the veterinary history sheets of horses which have been affected we find that recurrence is the rule, and experience shows it is much more pronounced in cases where early treatment has been neglected. That failures will attend our best endeavours at treating disease we readily admit, for we cannot expect to find such a thing as an unalloyed blessing; and thus there are failures under this method of treatment, which in some cases arise from the owners' fault, who permit the disease to run on to an advanced stage, in which it is so severe and sometimes so intractable. I need not dwell on the importance of early treatment in so-called "trivial" cases, to nip in the bud an incipient disease, as unless this is done it will probably spread to the head and other parts of the body, and may then last for months.

NOTES ON "PARACENTESIS THORACIS": A SUCCESSFUL CASE.

BY G. GARTSIDE MAYOR, F.R.C.V.S., KIRKHAM.

DURING the past year, two cases have come under my care in which I have judged it advisable to puncture the chest wall with a view to relieving dyspnœa which threatened to be fatal; and as the first case is very remarkable (at least to my mind), by reason of the enormous quantity of fluid evacuated, and the other one more pleasantly so, by reason of its favourable issue, I hope these hastily written notes may be considered of sufficient interest to warrant the exercise of the *cacoethes scribendi.*

On the 20th of March, 1887, my attention was requested to attend

a three-year-old shire filly. The animal had been under my care about fourteen weeks previously for a sub-acute attack of Pneumo-pleuritis, with some degree of cardiac trouble, from which she had made a satisfactory (apparent) recovery.

On examination I found undoubted evidence that the animal must have been ill for some days at least, as there was some degree of lung consolidation with marked pleuritic, and I thought pericardial effusion.

Prognosis was grave. Treatment consisted in *carefully administered* diuretics and stimulants (with tonics later), and counter irritation to the chest; patient was placed in a large, airy, loose box, free from draught, well nursed, and clothed.

On the 24th the effusion was so great that I punctured the right side of the chest with an ordinary trocar and cannula, $\frac{3}{16}$ in. diameter, but to my great disappointment was only able to draw off from two punctures about a quart of serous fluid, although I of course cleared the cannula repeatedly (with probe, and even by oral suction and insufflation, this latter giving unmistakable evidence of much fluid above the orifice).

On the evening of the same day I operated on the right side, when a little over a gallon of fluid escaped; but again I felt sure the quantity should have been much greater.

However, by this operation the filly was very considerably relieved for two or three days, when symptoms again warned me that another attempt to evacute the chest must be made.

Meantime I had mentioned the case to a medical friend, who suggested the passage through the cannula of an elastic tube. On the 28th, having decided to re-operate, I injected forty-five minims of a five per cent. solution of cocaine at site of proposed puncture, and having waited a few minutes, snipped a small fold of skin with the rowelling bistoury, and passed the same instrument as before through the wall of the thorax; for a few seconds fluid escaped freely, and then almost ceased, and the cannula was several times cleared, both by mouth and syringe, without much greater success than before. Then I passed through the lumen of the tube a human gum-elastic male catheter (No. 12), and there commenced an escape of serous fluid which, so far as I can gather, is unique in quantity, as resulting from *one puncture*. Percivall speaks of having removed ten gallons in two operations.

For over three hours the small steady stream continued, during which time considerably over ten gallons escaped.

The pulse at the commencement of the operation was 130—quite imperceptible at the jaw; steadily it came down until, about twenty minutes after the cannula was removed, it reached about 75.

As might be expected, however, after such an effusion, our poor

patient, although immensely relieved for a time, lacked power to rally, and was found dead in her box on the morning of April 5th.

During the later stages of her illness she took oatmeal gruel, new milk, and eggs freely, but could never be tempted to eat more than a mouthful or two at one time.

Much to my regret I was unable to make a *post-mortem.*

Why was each attempt to evacuate the chest with the simple cannula, in the case of each of four separate punctures, comparatively unsuccessful? Was the chest entirely lined with false membrane? *Post-mortem* examination might have furnished some answer. But independently of any difficulty in the way, is it not better that the rigid metallic cannula should not pass far into the chest, and the comparatively innocuous elastic tube (catheter, or what not) should be the instrument to come mainly in contact with the delicate pleura? And still more is it not an advantage that the flow should be somewhat slower than a free stream through a comparatively large cannula would be? the shock to the system and reaction in the lungs must be lessened by a gradual, rather than a speedy removal of the incubus. (Of course, this latter point might be met by using a smaller trocar, but a tube to pass through a small cannula would require to be so very fine that the operation would be unreasonably protracted.)

The ease, both to patient and operator, with which the catheter can be cleared from time to time, if required, is another distinct gain.

On 29th August I was requested to see an aged cart horse. On my arrival at the farm (where from thirty to forty work-horses are kept) I found that a number of animals had been "down with Influenza," but by rest and nursing had recovered without medical treatment, and the owner, supposing this case to be like the others, had been expecting a like favourable issue.

On inquiry I found that for a week past the horse had eaten next to nothing, and for several days had been "taking his wind very thick."

Auscultation revealed considerable pleuritic effusion, with seeming indications of cardiac trouble. The pulse was ninety-six and very weak. The temperature I was unfortunately not able to observe, as I had just broken my last thermometer.

The case seemed almost without hope. I adopted appropriate medicinal and other treatment, but without avail. On September 1st the pulse was about 130, the breathing simply fearful, and death seemed as if hourly impending. I punctured the left side of the chest, passed the catheter through the cannula, and without any difficulty, or the slightest possible hitch, drew off over four gallons of serous fluid (markedly albuminous).

By the time the operation was concluded the pulse had come down to about eighty-five, the breathing was correspondingly relieved, and the animal shortly took a little food,—more than he had done for nearly ten days.

For about a fortnight recovery was very slow, and the heart's action not at all satisfactory, being at times intermittent, at times having a marked murmur "sliding away from" (Robertson) the first sound (which at the time I feared might be due to valvular insufficiency, but I now think has probably been caused by fibrinous coagula adhering to the chorda tendinæ).

However, the heart's action gradually improved, and as the appetite had become good, and the horse lay down regularly, the outlook became cheerful.

Briefly, by the end of the first week in October the horse was discharged from treatment, within about fourteen days afterwards he was put to work, and has been taking "full duty" ever since.

Of course it is not possible to generalize much from so limited evidence, but still the lesson which I have learnt from these two cases is that which I think applies to most *remedial* operations, *don't wait too long.*

ENORMOUS CYSTIC SARCOMA FROM TESTICLE OF A BULL.

BY FRANK W. SOMERS, M.R.C.V.S., LEEDS.

THROUGH the kindness of Mr. E. W. Darby, the energetic secretary of the Butchers' Association, Leeds, and whose interest in pathology is so great that I have had many pathological specimens brought before my notice, my attention was called to an enormously enlarged testicle on a three-year-old bull. It appears this bull had been brought in from the country to be slaughtered, hence I have no previous history of the case. I examined both testicles just before the animal was slaughtered, and after death I had a brilliant opportunity of a thorough examination. The left testicle was normal and weighed just one pound, whilst the right one was eighteen inches long and weighed fourteen pounds. On cutting into the abnormal testicle, I found it consisted of a large cyst with walls two inches thick; the walls were of hard fibrous structure. Two pints of fluid escaped from the interior of the cyst, and there was no smell whatever; the fluid was yellow, and of watery nature. Several hard caseous materials were in the centre of the cyst. Across the cyst walls several longitudinal bands stretched from one side to the other, of softer consistency than the outer walls, resembling in appearance the moderator band of the heart.

A section was taken for microscopical examination through the cyst wall, and through one of the bands above mentioned close to its attachment. The section through the cyst wall consisted of little but fibrous tissue, with a few small cell groups, and here and there the remains of an atrophied gland tube. The section through the band near the base showed it to consist of round cells embedded in a dense intercellular network. There were a few large cell masses of the myeloid type; much of the connective tissue had a very hyaline appearance, and in parts the growth appeared to consist mainly of spindle cells embedded in a somewhat hyaline matrix. Such a specimen as the above is of rare occurrence, and very unusual in the lower animals, and I take this opportunity of recording it. I am indebted to Dr. Jacobs, professor of pathology at the Leeds School of Medicine, for his kind assistance in microscopically examining the sarcoma.

THE USE OF ANTIFEBRINE IN VETERINARY MEDICINE.

BY J. A. NUNN, F.R.C.V.S., F.R.G.S., ARMY VETERINARY DEPARTMENT, NATAL.

THIS new antipyretic (Acetanilide phenyl-acetamide) has but lately been introduced into human medicine, and, from the accounts published from time to time, appears to be very highly spoken of as a means of reducing the temperature without producing any after ill effects. It consists of white shining plates or scales, that melt at 112° to 114° Centigrade, and boil at 292° Centigrade. It is insoluble in cold, partly so in warm, and entirely soluble, in alcohol or alcoholic liquids. It produces its effects in a little over an hour, lowering the temperature, and lasting for about six or eight. It decreases the frequency of the pulse, and, it is said, increases its tension. It has been given to the human being in acute Rheumatism with high fever with good results, and without any after ill effects on the alimentary canal, by which it is well tolerated. I have used it with success in this country in the obscure forms of continued fevers that animals are subject to, especially in the autumn, both with dogs and cattle, giving the former five-grain and the latter dram-doses every four hours in ether, which dissolves the drug perfectly. The fall in temperature is most marked, and is not accompanied by any of the nauseating effects that not uncommonly are seen after the exhibition of other antipyretics.

Antipyrine is another closely-allied compound. It is soluble in water, but the dose is four times greater for the human being than antifebrine (*Berliner Klinische Wochenschrift, No.* 20, 1884). Of

this drug I have no experience. I am unaware that, up to the present, any use has ever been made of either of these antipyretics, in veterinary practice—at least, I can find no mention of them in any of the professional works I have access to, in this country.

FIT OR UNFIT FOR HUMAN FOOD?

BY HAROLD LEENEY, M.R.C.V.S., EAST GRINSTEAD.

PRACTISING in a district where many cows are kept, it is often my duty to advise or decide upon slaughter, and of course the subsequent disposal of the carcase is a matter of much importance to the unfortunate owner. How to act for the best in these cases must puzzle other practitioners as well as myself, and it is for this reason I wish to invite the opinion of others, so that some sort of line may be drawn or practice adopted. In mentioning this subject, doubtless the first class of cases that will occur to your minds is Parturient Apoplexy, so common, so fatal, and rapid. Who is to say that the cow that was left chewing her cud over night and found insensible in the morning, is a fit or unfit subject for food? Scores of such cases have occurred in my district, and the practice I usually adopt is, to first satisfy myself that the case is hopeless as regards treatment, that she has not had aloes, turpentine, or other noxious drugs administered, and that she has a pulse that promises proper bleeding on arrival of the butcher. Given the foregoing conditions, it is my practice to advise slaughter, and subsequently inspect the carcase, and if found good in my opinion, I give a certificate to the effect that I have examined said carcase, slaughtered by my order while in a state of Parturient Apoplexy, and that in my opinion it is fit for human food. To avoid local prejudice, it is sent off in daylight to a carcase-butcher with printed label, having on it the sender's name and address, and in course of time a cheque is received by the sender for so many stone, at per stone from 1s. 8d. to 3s.

I have eaten such meat without being able to detect any defect, and feel confident that to bury or give it to the dogs is robbing the poor of sound but of course inferior meat. No one I suppose would call the flesh of a cow as good as a fat steer or heifer, but there is a vast difference between flesh that is in legal phraseology, "rotten, unsound, and unwholesome, and unfit for human food," and that which is merely second or third class meat.

Dr. Fleming sums up in the following terms in his valuable work on Obstetrics, page 649:—

"As to the propriety of using the flesh in this manner, there have been different opinions, but provided the animal has not been

drugged to any considerable extent before death, and it is killed early, we cannot see any objection to its flesh being consumed; we have no evidence whatever that there is any deleterious agent developed during the malady."

Surrounded by jealous quacks and with no veterinary surgeon near enough to consult, I have come into collision with the police and sanitary authorities, but my certificate has always carried my client safely through all dangers, though a notorious "cag-mag" butcher was prosecuted for offering for sale some diseased meat. It was in this wise: a zealous rural policeman, prompted by my drunken rivals, had followed a carcase which I had seen and advised, but not certified (for want of writing materials); the meat was condemned, the seller arrested, and the evidence made as black as—well, as black as it could be.

In my examination in the witness-box, I informed the magistrates that the cow I saw had but *one head*, whereas there were two upon the extemporised counter where the meat was condemned. Notwithstanding this, the case was dismissed, as the magistrates informed me subsequently entirely on my evidence.

Sometimes cows that, in my opinion, would be fit for food if slaughtered, are allowed to die and go to the kennels, because "people make such a talk about it" if slaughtered, and the owner is afraid of incurring the "hairbrained chatter of irresponsible frivolity." This should not hinder us from doing our duty, though the simpler, safer, selfish plan of doctoring till they die would be more consistent with our pecuniary interests, and not lay us open to the foolish gossip of the ignorant or the malignant criticism of unqualified rivals.

I will not on this occasion ask for more space, or enlarge upon the other cases in which one may advise slaughter for the market, but hope that my imperfect remarks may induce some better-qualified persons to give us their opinions, or record their custom of dealing with such cases.

Editorial.

ANNUAL MEETING OF THE NATIONAL VETERINARY ASSOCIATION.

THE meeting of the National Veterinary Association at Newcastle-on-Tyne on July 17th and 18th was very satisfactory, a result largely due to the arrangements made for its reception by the local committee, which were remarkably complete and successful, and reflect great credit upon the organisers. Though this was the sixth year's meeting, the report of the Secretary did not show much progress in its development, the addition to its members being very trifling during this period, and certainly far below what it should have been, and what was expected when the Association was formed. Like nearly everything else connected with our profession in this country, it labours under disadvantages, which doubtless retard its prosperity and limit its usefulness. But, nevertheless, if enthusiasm and energy count for anything in ensuring success, then this will follow in the course of time; for those who have loyally supported it during the six years of its existence—and foremost amongst these must be mentioned its indefatigable Secretary—will, we feel assured, continue to do so, and their example must in due course influence those of their colleagues who have not yet seen their way to enrol themselves as members.

This year there did not occur much to mar the harmony of the meeting, and the discussions were generally interesting and edifying. A particularly pleasing feature was the presence of the Mayor and Sheriff at the opening of the meeting, and the attendance of several medical gentlemen, several of whom belonged to the staff of the Medical College attached to the Durham University. Some of these assisted in the labours of the meeting, and graced the dinner of the members on the evening of the first day, their expressions of sympathy towards the veterinary profession, admiration of the rapid progress it has made, and their hopes and good wishes for its future being gratefully received and reciprocated by the veterinary surgeons who had the good fortune to fraternise with them. The only matter for regret is that they were reminded, in a very painful manner and at a very inappropriate time, that they were human, and sometimes blundered. We hope their opinion of the veterinary profession was not diminished by the mistaken candour of the individual who thus reminded them of their faults; at any rate, their sense of propriety enabled them to conceal what they must have felt as an ungenerous and undeserved attack, and they did their best to show how little they merited it. Beyond this episode, everything appears to have gone off agreeably, and those who travelled to Newcastle-on-Tyne to attend the meeting will, we feel sure, long retain pleasant memories of their reception by their colleagues who dwell in and around that busy city.

ON THE MODE OF ACTION OF THE CONTAGIUM AND THE NATURE OF PROPHYLAXIS IN SOME INFECTIVE DISEASES.*

BY G. F. DOWDESWELL, M.A.

In a recent investigation upon Rabies, communicated to the Royal Society,† a short abstract of the results of which was published in *The Lancet*,‡ I have been forcibly struck with the fact that, notwithstanding the assiduous attention that has been given to the etiology of infective diseases and bacterial pathology during the last decade, the mode of action of the virus, and the intimate nature of Prophylaxis, have received the most scant consideration.§ It is to this circumstance, I think, in some measure, that the want of any substantial progress in our knowledge of this subject, and especially in the methods of treatment in infective diseases, is due. This is particularly exemplified in the disease here immediately in question, though this assertion may appear paradoxical, for if it be granted that a successful method of protective inoculation has been discovered and practised by M. Pasteur, it is certain that we are still in as complete ignorance—whatever we may assume—of the nature of the contagium as we are of its mode of action.‖ I wish, therefore, to call attention to the considerations that have suggested themselves to me upon these subjects, in the hope that discussion and experimental investigation of these particular points may tend to their elucidation and be productive of practical utility.

M. Pasteur conjectures that in Rabies the virus may be composed of two substances; the one a living organism capable of reproduction and development; the other chemical, "non vivante," which, "when in sufficient quantities," inhibits the development of the other.¶ This, propounded merely conjecturally, is essentially the same view as that which was originally formulated by Chauveau** for natural refractoriness to infection, and where he accepts Pasteur's previous "exhaustion" theory for the case of animals artificially protected by inoculation with an attenuated virus, and is very similar to the theory adopted by Toussaint to account for the refractoriness of some animals (Algerian sheep) to infection with Anthrax; it is generally known as the "counter-poison theory" of protection—viz., that in infective diseases pathogenic microbes elaborate within the tissues of their host a chemical product that is inimical to their own development, protecting from their future action, and preventing a recurrence of the disease.†† The other theory most in

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* From *The Lancet*. † Proc., vol. xliii., 1887. ‡ 1887, vol. ii., p. 680.

§ This subject is discussed by Dr. E. Klein in his work "Micro-organisms and Disease"; and this, with the exception of the articles by Dr. G. M. Sternberg, referred to below, is almost the only one recently published in this country.

‖ That I may not appear to contradict my own statements elsewhere upon this point, I will add that to "think strongly," as I do, that a certain organic form is intimately related to the contagium, is a widely different thing from logically demonstrating their identity, as has been done in a few other cases.

¶ His words are (Comptes Rendus, 1885, t. ci., p. 765): "Se pourrait il que ce qui constitue le virus rabique soit formé de deux substances distinctes, et qu'à côté de celle qui est vivante, capable de pulluler dans le système nerveux, il y en ait un autre, non vivante, ayant le faculté, quand il est en proportion convenable, d'arrêter le développemnt de la première.

** C. R. Acad. Sc., Paris, 1880, t. xc., p. 1526.

†† This view was not originated by Klebs, as has been said; he (Arch. f. Exper. Path. u. Pharmakol., Bd. 13, p. 284) merely notices briefly the article of Pasteur, Chauveau, and Toussaint, all published during the same year in Comptes Rendus. He designates the theory of the first-named as that of "deficiency," which view he himself favours. He refers to that of Chauveau as the theory of inhibition (Hemmung), whilst, somewhat singularly, he terms that of M. Toussaint the antidote or counter-poison view, though the latter in the passage noticed (C. R. t. xci., 1880, p. 324) only says that in the case of animals artificially rendered refractory to Charbon (Anthrax) their blood and lymph seem to have become unfit to support the parasite,

vogue of the causation of this immunity against infection, which was originated and advanced in the instance of Fowl Cholera, and of Anthrax by Pasteur himself,* is that during the progress of the disease the microbe consumes and exhausts some constituent of the tissues requisite for its own nutriment, and that this is not regenerated during the continuance of immunity. This is known as the "exhaustion" theory. Of these views neither the one nor the other appears to rest upon any sufficient basis of experiment or observation.

The theory of the elaboration by pathogenic microbes of a chemical counter-poison is founded upon the circumstance, as shown by Wernich and others, that in an artificial cultivating medium, many saprophytes, as well as ferments, form decomposition products, which are inimical to their subsequent growth and development, and it is supposed by some who have extended the theory beyond the meaning of its originator, that a similar process goes on in the course of a micro-parasitical invasion of the animal body; this, however, has not been shown to occur in any instance, nor can there be any true analogy between the case of an organism growing in a nutrient fluid of constant finite composition, where sooner or later it necessarily exhausts its pabulum, and the case of one developing in the animal organism, the cells of which have a constant power of secretion and regeneration. It cannot be supposed here either that any one constituent of these tissues should be permanently exhausted, without any appreciable derangement of their functions, as the one theory requires, or, in accordance with the other view, that the tissues should be saturated with a foreign substance, a decomposition product, toxical to the micro-parasite, and that this substance should be retained permanently, or for an indefinite time, without being excreted, and be altogether innocuous to them. Moreover, it has not ever been shown that in artificial cultivations any *truly parasitical* micro-organism does form a toxical soluble decomposition product, as saprophytes do, and this is probably a constant distinction between the two classes of microbes, parasitic and saprophytic.

In the case of one disease—Fowl Cholera—it has been proved by Pasteur that in artificial cultivation of the contagium, a microbe, the cessation of its growth is not due to the production of a substance toxical to it, but merely to exhaustion of its nutriment. He evaporated the fluid of the exhausted growth to dryness at a low temperature in vacuo;† then filling it up with fresh bouillon to its original bulk, the development in it of a fresh growth of the micro-fungus, when inoculated, showed the absence of any product, toxical or inhibitory to it. He subsequently‡ confirmed this conclusion by actual experiment upon fowls, injecting into them large quantities of the exhausted cultivation fluid, but found that they were in no way protected against subsequent infection by inoculation with the virus.§

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while M. Chauveau (loc. cit.) says that in Algerian sheep the microbe behaves as if the blood had become unfit for it by the presence of toxical substances. Consequently, the term "counter-poison" is more appropriate to the view of Chauveau than to that of Toussaint. The passages here in question are the first that deal systematically with the *modus operandi* of the methods of protection against infective diseases that have now assumed such a vast importance.

* C. R. Acad. Sc., Paris, t. xc., 1880, p. 952.

† Ibid., p. 248.

‡ Ibid., p. 1,030.

§ Since this was written MM. Roux and Chamberland claim to have shown (Annales de l'Institut Pasteur, 1887, No. 12, p. 563, and 1888, No. 2), in the cases of Pasteur's Septicæmia and of Charbon Symptomatique (Rauschbrand) that Prophylaxis, induced by the methods they advocate, is caused by the action of a soluble chemical substance, the product of, as they regard it, a pathogenic microbe; and M. Chauveau (C. R., 1888, p. 392) favours this view of the mode of action of Prophylaxis generally. Notwithstanding the pre-eminent authority on this subject of the latter distinguished

In the typical case of Anthrax,* also the same observer has shown that though fowls inoculated with its virus are normally insusceptible to infection with it, yet that when their bodily temperature, which is usually 103° F., is reduced by placing their feet in cold water the microbe is able to develop and produce the disease; and further, when the symptoms are fully developed, by again raising the body temperature the fowl recovers, but if cooled a second time the virus becomes as active as before. This clearly appears to prove, moreover, that this normal insusceptibility of fowls to the virus of Anthrax is not due to the presence in their tissues of a chemical substance toxical to the microbe, or a "counter-poison," for such a substance could not be conceived to appear and disappear on slightly depressing or raising the temperature, and for similar reasons it disproves the view that in this case the virus acts (toxically) by the production of a chemical poison.

Pasteur considers that in Anthrax and in Fowl Cholera † the virus acts by depriving the red corpuscles of the blood of their oxygen, as shown by the comb. He further says‡ that refractoriness to infection seems to him in all cases to be due to constitution, to "vital resistance," which opposes the multiplication of the microbe, the action of which as a cause of the non-recurrence of the disease he has explained§ by its altering or destroying some constituent of the tissues, which it either assimilates or burns by the oxygen which it abstracts from the blood, comparing the condition of a protected animal to an exhausted cultivation fluid.

That the virus does act by causing Asphyxia, in the cases mentioned, and in some others where it pervades the blood, appears perfectly correct; but that the protective action of a modified virus or of a mild attack of the disease should act in this manner by the partial consumption of oxygen in conferring immunity from, or an increased refractoriness to, infection is difficult to conceive; inasmuch as this view supposes the functions of the red blood-corpuscles as oxygen carriers to be permanently destroyed or impaired, and leaves only the view that refractoriness to infection is due to the "vital resistance" of M. Pasteur indeed, but that this is synonymous with the physiological functions of the tissue cells, the inherent properties of protoplasm, and

investigator, the conclusion does not appear to me satisfactory, because neither Pasteur's Septicæmia or Charbon is a true and uncomplicated micro-parasitical disease as are Anthrax and Davaine's Septicæmia, where the microbe constitutes solely and simply the contagium, and where one viable cell is as actively and certainly infective as an infinitely greater number; while in the former cases the micro-organism at least requires the aid of a toxical fluid, the morbid product of inflammation, and is never, according to my own observation and the statements of others, infectively or actively injurious when inoculated in minute quantities, and consequently its action can only be regarded as secondary; hence these diseases are sharply distinguished from those that are truly micro-parasitical, as Anthrax, etc. In the case of Pasteur's Septicæmia, it was shown many years ago by Drs. Sanderson and Klein (Med. Chir. Trans., vol. lvi., p. 345, etc.; see also Proc. R. Soc., 1883, No. 223) that the disease, with occurrence of the same reputedly pathogenic microbe, could be excited by intra-peritoneal injection of a sterilised chemical fluid. So that if it be considered (which is not my view) that the microbe is pathogenic, it follows that the same disease can be produced by different means, similarly to what is truly the case in the acetic fermentation mentioned below. M. Roux, in the article referred to, considers that in M. Pasteur's experiments above mentioned, Prophylaxis failed through his not injecting a sufficient quantity of the fluid. This, however, is a mere conjecture, unsupported by any evidence or experiment. If it be correct, nothing is easier than to prove it experimentally; but it does not touch the previous experiment of the growth of the microbe in exhausted cultivations, which the theory of a soluble counter-poison requires to be disproved. It appears to me that M. Roux's results are plainly accounted for by the circumstance, as mentioned above, that he was working upon epizootics that are not truly micro-parasitical.

* Op. cit., t. lxxxvii., 1878, p. 47. † C. R. Acad. Sc., Paris, t. xc., 1880, p. 530.
‡ Ibid., t. xci., p. 537. § Ibid., t. xc., p. 954.

power of resistance to the toxical action of foreign cells or substances, which is the only view that appears consistent with the established facts of this case, and with the occurrence of induced refractoriness in other diseases by the protective action of a modified virus, or the occurrence of a mitigated form of the disease. This view has been well and clearly advocated by Dr. G. M. Sternberg* as well as Salmon,† the former of whom instances the acquired toleration of the organism both in man and the horse for arsenic, and of the former for opium and many other drugs; it will scarcely be maintained that this result is due either to the presence of a chemical counter-poison or to exhaustion of one of the elements of the tissues.

Another view of the *modus operandi* of protection in infective diseases is that lately promulgated by Metschnikoff.‡ It has been termed the "scavenger" theory, and is that the leucocytes or lymph-corpuscles in the spleen of other organs eat up (hence termed "phagocytes") the invading micro-parasites; this is a form of the physiological theory, but clearly as the appearances are described and figured, and probable as the conclusions of the author appear, it requires further investigation.

Similarly, too, it has quite recently been shown§ that certain low organisms —monads—may be gradually inured to a temperature far higher than that natural, and which would have originally been fatal to them; this increased toleration for heat is not surely induced by any chemical change in the tissues of the organism, but by physiological functions altered by habit.

Those who advocate the chemical view of either prophylaxis or the pathogenic action of microbes upon the animal organism overlook the fact that the ultimate action of any chemical substance upon the cells of the tissues is clearly physiological; it does not effect a decomposition of the constituents of these cells, as in the splitting up of the molecule of sugar by the alcoholic ferment; so that this chemical theory merely introduces a third factor in accounting for the action of micro-parasites, and is far from explaining or simplifying it. It has not yet been demonstrated or shown probable that in any case a *pathogenic* microbe acts by the production of or forms a soluble chemical substance, and herein is one distinction between septic and pathogenic or parasitic microbes; but, on the contrary, some of the earliest experiments upon the nature of the contagium—a true pathogenic microbe—in Anthrax by Davaine, Pasteur, Tiegel, Bollinger, and others, were by filtering virulent blood, which, when freed from the living micro-organisms by these (or, in some experiments, other) means, was found to be deprived of all virulence. These results, which disprove the presence and action of a soluble chemical virus in a truly micro-parasitical disease have never been controverted.‖

The theory of the production of ptomaines or soluble toxical alkaloids in putrefaction, and also of others—"leucomaines"—in the living body, as the product of the morbid metabolism of its cells, has recently been advanced by M. Gautier and others, and is assuming an importance which may greatly influence or revolutionise the pathology and views of the etiology of disease, and not impossibly affect our conception of the *modus operandi* of pathogenic microbes in some cases. It was, however, shown,¶ in opposition to the view of the production of ptomaines, that the toxical action of certain organic fluids was due to the presence in them of insoluble particulate

* Magnin and Sternberg: Bacteria, 8vo., p. 246; New York, 1884; and *The Lancet*, vol. i., 1885, pp. 655, 695. See also Grawitz, Virch. Arch., Bd. xiii., S. 284.
† Rep. U.S. Agricult. Dept. in Bot. Gaz., vol. xi., No. 6, p. 241. etc.
‡ Virch. Archiv, Bd. cvii., 1887, p. 210; and ibid., Bd. xcvii., 1884, p. 511.
§ Address of the President, R.M.S., at the annual meeting, 1887.
‖ The most recent experiments and results of MM. Roux and Chamberland on this point I have noticed *supra*.
¶ Gaz. Chim. Ital., t. xiii, 1883, p. 172.

matter, and recently* Dr. Wooldridge, pursuing this line of observation, states that a microbe, said to be pathogenic in its action upon guinea-pigs, when cultivated in certain artificial albuminous fluids, produces an insoluble particulate precipitate which is toxical to the same animals. The facts are briefly stated, and no conclusion can be formed upon them; but should they be confirmed and the microbe proved to be *truly* pathogenic, which is doubtful, if it form an insoluble particulate precipitate in the blood of its host, this is an important observation, and may possibly account for the pathogenic action of the micro-parasite in Anthrax and other diseases. It is not inconsistent with the filtration experiments above referred to, nor the appearance of embolism with the occurrence of granular matter, which I have constantly observed as above mentioned. More recently still the same writer has stated in a note† that, by cultivations in *certain albuminous fluids*, the Anthrax bacillus forms a product which, by intravenous injection in rabbits, is protective or prophylactic against infection by subcutaneous inoculation made *immediately afterwards* with active Anthrax virus, but that the growth of the microbe itself in the modified fluid is by no means protective, nor is the fluid so when blood serum is used.‡

Here, *prima facie*, is a case of protection by the action of a soluble chemical substance, and one apparently toxical to the active contagium; it is, however, as yet too early to form any conclusions upon it. That the case is anomalous and not similar to that of the protection afforded sometimes by the action of a modified living virus (attenuated growth of the micro-fungus) is shown by the fact that cultivations, as stated, in blood-serum do not give the same result; and as it is said that inoculations of the active virus have been made *immediately* after injection of the protective fluid, it may have been retained within the blood-current, without elimination, sufficiently long to have acted toxically or inhibitorily to the active contagium, injected rapidly afterwards, but which would not be the case after some interval, and consequently the result would not be similar to that of vaccination or prophylactic inoculation in other cases. With respect to the statements by Dr. Cash in the same report, that injections of a solution of bichloride of mercury will give protection against subsequent inoculation with virulent Anthrax, these cannot be regarded as establishing any conclusions beyond the limited case stated, though the fact is of interest; but as it is stated that the immunity to infection so conferred endures for "five or six weeks," it is conclusive against the view of the action of a chemical counter poison, as such, for it can not be seriously contended that such a substance as corrosive sublimate persists unchanged in the tissues; and the result must obviously be due to its physiological action in increasing the "vital resistance"—*i.e.*, the normal activity—of the cells, and enabling them successfully to resist the attacks of a foreign organism. (*To be continued.*)

VETERINARY HONOURS.

We are pleased to announce that Professor Smith, Army Veterinary School, has been elected a Fellow of the Institute of Chemistry—the first member of our profession, we believe, who has had this honour conferred upon him. No less gratifying is it to mention that Mr. E. E. Bennett, Army Veterinary Department, has successfully passed the senior examination of the Royal Agricultural Society, which was held on May 8th and four following days. This entitles him to the Society's Agricultural Diploma, as well as its Life Membership and accompanying advantages.

* Report Med. Off. Loc. Gov. Bd., 1885-86.

† Proc. Roy. Soc., 1886, vol. xl., pp. 134, 313.

‡ These experiments do not appear to have been continued, from the Report Med. Off. Loc. Gov. Bd. (1886-87) recently issued, and can only be regarded as suggestive.

NEW INSTRUMENTS.

A PROPERLY constructed saw and knife are essentials to the proper performance of Smith's Sidebone operation. Messrs. Arnold and Sons have lately manufactured these from patterns furnished them by the introducer of the operation.

The great difficulty in sawing through the wall of the foot is to get deep enough at the upper part. This is provided for in the new saw (Fig. 1) by

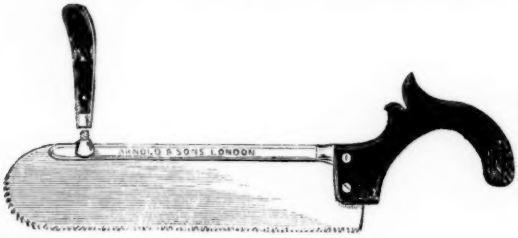

Fig. 1.

reversing the teeth at the rounded extremity, and cutting downwards by successive short cuts, and in order to obtain the necessary pressure a handle is fixed on to the end of the blade. This handle unscrews at pleasure for facility of carriage.

The knife (Fig. 2), which has a double edge, is for cutting the groove

Fig. 2.

between the wall and the sole; owing to its peculiar shape exactly the required amount of horn is removed, and there is no risk of damaging the sensitive parts within.

The suture needle shown below (Fig. 3) should prove most useful to all

Fig 3.

who have much of this class of surgery to perform. The needles of different sizes are contained in the handle, and are fixed ready for use by means of a strong thumb-screw.

The densest tissue may readily be penetrated without the slightest injury to the operator's fingers, and great rapidity in operating is obtained—a by no means unimportant advantage.

The eye of the needle is arranged on a well-known principle, being simply a notch to take the wire, silk, or other suture material. The needle is pushed through the two lips of the wound; the ligature material is then looped on and the needle drawn back; the process is extremely rapid. The loop should be made long, so that both extremities are between the operator's first finger and thumb of the left hand whilst the needle is being drawn backwards by the right hand.

INTERNAL TEMPERATURE OF THE SHEEP.

FEMALES.		MALES.	
104·2	104·0	102·6	104·0
103·8	104·4	103·8	104·6
104·0	105·0	103·6	104·2
104·4	103·8	104·0	104·0
105·2	104·8	104·0	104·0
105·0	105·2	103·6	104·0
103·6	104·4	103·8	103·4
105·0	105·8	105·0	104·2
104·2	104·4	103·4	103·8
104·0	104·8	104·0	103·8
104·8	104·8	103·8	104·0
104·6	104·0	104·2	104·0
105·0	105·0	103·4	104·4
104·6	104·0	104·4	104·8
104·8	103·8	104·0	103·4
104·6	104·0	104·4	103·2
104·2	104·4	104·0	103·8
105·0	104·6	104·2	103·8
104·2	105·0	103·8	104·0
104·6	103·8	104·0	103·8
104·0	103·8	104·0	104·0
105·8	104·0	103·4	105·0
105·0	105·0	103·4	104·0
104·0	104·4	103·6	104·2
103·6	104·0	104·0	104·2
Average temperature of 50 Females=104·4 F.		Average temperature of 50 males=103·9 F.	

Average Temperature of 100 *Sheep, Males and Females*=104·2 F.

I took these temperatures on June 13th and 14th, 1888, commencing each day at 10·30 a.m.; atmospheric temperature in the shade=65 and 60 F. The temperature was taken in the rectum. The sheep are one year old, "cross bred."

HUGH M. SINGLETON, M.R.C.V.S.

Proceedings of Veterinary Medical Societies, &c.

NATIONAL VETERINARY ASSOCIATION.

THE sixth general meeting of the National Veterinary Association was commenced at the Assembly Rooms, Newcastle-on-Tyne, on July 17th. The President, Professor W. Williams, F.R.C.V.S., Edinburgh, occupied the chair, and there was a large attendance, amongst those on the platform being the Mayor of Newcastle (Mr. W. D. Stephens) and the Sheriff (Mr. Jos. B. Ellis).

Welcome from the Mayor.

The President said he was sure they would all express their hearty thanks and high appreciation of the visit of the Mayor and Sheriff of the city. (Applause.)

The Mayor was exceedingly happy to have the honour of coming to offer them a hearty welcome to Newcastle. They were now a learned Society, and had made such great advances during the last few years that they were a power, and occupying a position they did not hold in former years. It was not inappropriate that he should be present that morning, inasmuch as he was President of the Local Society for the Prevention of Cruelty to Animals. This Society was much indebted to the Veterinary Association for the knowledge it spread, and they looked upon the Association as doing a great amount of good. Newcastle was the centre of a large district, and the members of their association had many opportunities of exercising their knowledge, and that knowledge had reached a high position, for it was professed by men of education and men of science who now entered their profession. He hoped the result of their conference would be the diffusion of that knowledge which was essential to the right carrying on of their profession, and that they would go away amply gratified, and with that kindly, jovial fellowship which showed they had learned something from each other, and were willing to communicate the knowledge they had gained in their own special department. (Applause.)

The Sheriff also cordially welcomed the Association, and pointed to the large importation of foreign cattle into this district as showing the necessity for our having the best talent of the veterinary profession in our midst. (Applause.)

The Annual Report.

The annual report was then submitted. It stated that the local secretary had taken advantage of his presence in Ireland this year of delivering a circular announcing the present annual meeting in order to increase the number of Irish members, and the result had been that fifteen new members had been elected. Hitherto the Association had been almost exclusively supported by English and Scotch practitioners, and, as a consequence, the gathering had been confined to England and Scotland. It was now suggested that the eighth general meeting should be held in Dublin, but to accomplish that it was necessary that the profession in Ireland should secure a strong representation on the Association's list of membership. During the year 39 new members had been elected, so that the total number of members on July 2nd last was 295. The treasurer reported that the Association was still in a prosperous condition. The year was commenced with a balance in hand of £13 2s. 3d., and including this, the total income had amounted to £141 1s. 3d.

Professor Walley, Principal of the Royal (Dick) Veterinary College, Edinburgh, moved the adoption of the report.

Mr. J. Bell, Carlisle, seconded the motion, which was carried.

The President's Address.

The President then delivered his address. He began by thanking them for the honour bestowed upon him in electing him as their president, and on behalf of the Provisional Committee gave the representatives a hearty welcome to Newcastle-on-Tyne, a city rendered famous by its commercial, industrial, chemical, and maritime enterprise; and illustrious by its association with the name of Armstrong, who had done so much to help them to defeat their enemies by land and sea. Since the society met last year they had to deplore the deaths of Professor Robertson and Mr. Harpley. During

the Jubilee year of Her Majesty their profession was not forgotten. The Principal Veterinary Surgeon to the Forces, as well as the Chief Veterinary Inspector of the Privy Council, obtained the Companionship of the Bath, and the President of the Royal College of Veterinary Surgeons was knighted. Few as these recognitions and honours were, they had done much to elevate the status of the profession, and no man need now be ashamed to acknowledge he was a member of it. He had known many men who, though daily exercising the profession as a means of livelihood, were offended when even their calling was specified on their letters. There were two matters he felt were acting prejudicially to the profession. The first was the keen competition for practice which existed, especially in our larger cities. He was informed by many, both in and out of the profession, that the competition and consequent cutting down of fees was so very great as to render it an impossibility in some cases to leave any margin of profit. This should not be. It was impossible for their profession to maintain any position in the world if its members allowed their sense of what was due to themselves, and the training they had undergone, to have so slight an influence on their mutual relations. Competition carried on to such absurd extremes could result in no benefit to any one of the parties concerned, and he thought that a very small amount of reflection would be amply sufficient to demonstrate its injurious effects. A word must also be said about the press. The press was always ready to diffuse information, and they constantly saw in the daily and other papers articles written by members of their profession, containing a large amount of information well worthy of their appreciation, and of immense value and advantage to the public. Who could deny that articles pointing out the causes, the prevention, and symptoms of such a disease as Anthrax —a disease common to man and the lower animals—or pointing out the danger of the milk or flesh of tubercular cattle, or demonstrating the danger of parasitic invasion, and consequent disease, and even death, arising from the consumption of under-cooked meat, were of the greatest utility? The writers of such articles were benefactors of the human race, and conferred a blessing on the community; and if they went no further than this they would deserve the thanks of both the profession and the public. But he was sorry to say there were other writers, some of whom were members of the profession, and some who were not, who in their writings in the press had overstepped the line of professional propriety, possibly inflicted serious damage upon those who were guided by them, and undoubtedly committed a serious offence against those members of the profession who had to maintain themselves and families in a position of respectability. He went on to quote answers given in a newspaper to correspondents asking for information as to diseases in cattle, the answers causing much laughter. No one could deny that their profession had, during the last few years, made considerable progress, both in theory and practice, and looking back even to the commencement of his own career, he could safely say that many fatal diseases had, thanks to their better knowledge of the laws of health, almost entirely disappeared. With regard to Pleuro-pneumonia, he thought it would have been better if the Government had instituted a further inquiry into the utility of preventive inoculation before determining upon wholesale slaughter as the only remedy. The poleaxe was a rough medicine, and subjected the dairyman to ruin. Perhaps among store stock wholesale slaughter was the most effective preventive to the spread of the disease, but his experience enabled him to state that inoculation prevented its spread, and as dairy cows were seldom or never sold from town dairies except to the butcher, inoculation would have been much more economical in the suppression of the disease. With reference to Tuberculosis, it was admitted by all who studied this affection that it was very closely allied to, if not identical with,

Consumption in man, and that it was transmissible from one animal to another, and from animals to man. Whilst admitting this, he might express the opinion that before all so-called tubercular animals were condemned as unfit for human food, a better understanding should be arrived at as to what true Tuberculosis was. Whilst they as a profession had done much that was satisfactory to themselves and to the public, they were still to some extent in a different position from their brethren in the medical profession. With them the relief of suffering and the prolongation of life were ends in themselves. If these be attained the medical man realised his ideal and established his reputation. From them more was expected. They had to restore to usefulness and to practical value. The medical man restored his patient to life and the enjoyment of a reasonably comfortable existence, though he might not have succeeded in restoring him to his former activity. Yet his efforts were rewarded by the highest appreciation. If their patients remained maimed or useless from a practical point of view, they found their efforts unappreciated or considered unsatisfactory. It was, therefore, more requisite for them by diligent study, by painstaking observations, and by single-minded devotion to their work, to merit success.

The Transmission of Disease from Animals to Man.

Dr. H. E. Armstrong, medical officer of health for Newcastle, read a paper on "The Importance of the Study of Comparative Pathology." In the course of the paper Dr. Armstrong pointed out how man's health may be injuriously affected by means of animals and the lower forms of plant life, and quoted instances of Scarlet Fever outbreaks that appeared to him to have been transmitted through milk from the cow. He said these examples represent merely a portion of what is known on this vital subject in respect of which the sum of our knowledge is as nothing in comparison with our ignorance. An ocean of truth lies still unexplored before us. The microbe theory appears destined to overthrow many old ideas and to enlighten much that has hitherto been in darkness. Much impediment to scientific progress on comparative pathology seems to result from the present system of approaching the entire subject. Instead of pursuing hand-in-hand the search after truth for the good of all, physicians and veterinarians are too apt to work in different, and not always converging, lines—sometimes apparently almost in antagonism, as though each party had a different interest to serve. Hence the want of full interchange of ideas and community of knowledge—and, as a result, apparent contradictions. Probably this condition of things is to a great degree due to the imperfect training students of each profession receive in this special department of their curriculum. Comparative pathology is not a thing in two halves, one of which belongs to doctors and the other to veterinarians. It is entire, and the common sphere of both. If the students of both kinds were taught this subject side by side, they would lay hold of it with a fuller, firmer grasp; and having once felt the advantage of working together, would continue to so work in after life to the general benefit. On the urgent need for such a system of study as regards those of his own profession, Dr. George Fleming makes the following observation:—"It is curious to find that while chairs are endowed at our Universities for teaching the most abstruse and unprofitable subjects (speaking comparatively), veterinary science and the science of comparative pathology, which are capable of conferring the greatest possible advantages in a humanitarian, scientific, and utilitarian point of view, should be so strangely connected." The want here so strongly expressed will not, it is hoped, so far as relates to the north of England at least, continue much longer. The medical faculty of the University of Durham are making preparation to meet it by the establishment of a veterinary department in their new college building now in course of erec-

tion at Newcastle, where it is proposed to arrange for the receptions of animals of different kinds, primarily for the purpose of studying their diseases in relation to those of man, in which object the science of bacteriology will properly form a prominent feature. It is unnecessary to enlarge further on the benefit to students of medical and veterinary science, to agriculturists and stock-owners, and to the public generally, to be derived from a department such as this. One thing only is wanting to secure its establishment and success, namely, money to meet the necessary expenses. Naturally, the college look for help, and appeal to those on whose behalf they are working. The nucleus of a fund has already been formed, and the first contribution to it was a handsome donation of one hundred guineas by a respected member of the National Veterinary Association, Mr. Clement Stephenson, of Newcastle-upon-Tyne. Whilst earnestly desiring to recommend this matter to the consideration of the members of this Association, I venture to express the hope that at no distant date the scheme as above outlined will have so prospered and developed that the veterinary students of the north of England, instead of having to seek their education at a distance, will be able, not only to study comparative pathology, but to complete their entire curriculum, and even obtain their diplomas after examination in the University of Durham College of Medicine at Newcastle.

(*To be continued.*)

DINNER AT THE COUNTY HOTEL.

The annual dinner took place in the evening at the County Hotel, Newcastle. The president (Professor W. Williams) occupied the chair, and he was supported on the right by the Sheriff (Mr. Joseph B. Ellis), Professor Philipson, and Dr. H. E. Armstrong; and on the left by Dr. Gibson, Dr. Fleming, C.B., Dr. Drummond, and Dr. Oliver. The vice-chairs were filled by Mr. F. Hunter and Mr. George Elphick. The usual loyal toasts having been honoured,

The PRESIDENT proposed "The Army, Navy, and Reserve Forces." He said the members of the veterinary profession in the Army had shed great lustre on their body, and he paid a high compliment to the work done by the Chief Veterinary Surgeon to the Army, Dr. G. Fleming.

Dr. FLEMING responded. He said that in regard to our defensive forces we were subject to periods of either apathy or panic. We now appeared to be verging into a period of panic. He did not think panics were things to be wished for. They were things to be shunned. A state of panic was not at all creditable to a rich and powerful nation. If we were undefended or not properly defended, it was the country who were to blame. They must remember that our Government by party entailed on the nation a very serious responsibility. A very strong party cry by the party that was not in power was retrenchment. A very strong motive for the party in power was to keep down expenses. Therefore, if the defensive or offensive powers of the country were weakened; if they had got below par, it was the fault of the country themselves. The public should see that the defensive and offensive forces of the country were kept on a good footing. With regard to the Army, many changes had taken place during his career. He thought our soldiers were as good as ever they were. They were perhaps younger, but that was a fault that was mending every day, and he confessed he had great faith in young soldiers. (Applause.)

Mr. GEO. ELPHICK also responded.

Mr. W. HUNTING gave "The Royal College of Veterinary Surgeons." He said theirs was perhaps the youngest profession in the kingdom. They were only born somewhere in the "forties," and considering this fact he thought they had made tremendous progress. They had every reason to be

proud of what they had done and of the position in which they now stood. They were recognised by the State and appreciated by the public. What more could a profession want? (A laugh.) Well, some money, of course. (Laughter.) Their profession formed a department under Government, and it had done good work. They had rid the country of a tremendous outbreak of Cattle Plague, and on two other occasions, owing to the measures adopted and the way in which they were carried out, they had prevented the spread of disease except in a small centre. They had also stamped out by the means of this department the Foot-and-Mouth Disease, perhaps the most contagious disease, though not a very fatal one. It would not be long before they would stamp out another disease. Whether by inoculation or the pole-axe he would not say, but he believed that the next few years would see the country rid of Pleuro-pneumonia. They had also great hopes of getting rid of Glanders. Dr. Fleming in a report stated that the Army horses were entirely free from Glanders. He thought that reflected the greatest credit on the Principal and also upon his staff. The profession had done more than merely prevent contagious disease spreading. He thought they might claim to have done a very great deal for the hygienic arrangements under which animals were kept in this country.

Mr. WRAGG briefly responded.

Professor WALLEY proposed "The Sister Profession." He said the veterinary profession owed a great deal to the medical profession. All their early ideas were taken from the medical profession. Some of those who were the first to practise their profession were medical men, and he honestly confessed that so far as he was personally concerned he owed all his knowledge to the members of the medical profession. He had always, since he commenced the study of his profession, taken the greatest possible delight in getting hold of medical works and studying them even more than the works of the members of his own body. (Applause.)

Dr. C. GIBSON responded. He was sure Professor Walley was most anxious to do great honour to the toast, but he afforded them an intimation that they might have forgotten, and that was that the medical profession was not quite a perfect profession. They did sometimes commit errors, and he was sure Professor Walley and everybody present would pardon their shortcomings, for he suspected veterinary surgeons too sometimes made mistakes. (Applause.) He expressed his pleasure at being present, and concluded with a wish for the advance of the profession of veterinary surgeons.

Professor PHILIPSON also responded.

Mr. H. HUNTER gave "The Corporation of Newcastle," to which the Sheriff responded.

Mr. T. GREAVES proposed "The President," who suitably replied. The other toasts included "The Essayists," "The Provisional N.V.A.," "Local Veterinary Medical Associations," "The Secretary and Treasurer of the N.V.A.," "The Visitors," and "The Ladies," the latter toast bringing the proceedings to a close.

ROYAL SCOTTISH VETERINARY ASSOCIATION.

A QUARTERLY MEETING of this society was held in the library of the Royal Veterinary College, Edinburgh, on the 20th June, 1888. Professor Walley, President, occupied the chair. The following members were present:—Messrs. Burnett, Maybole; Fingzies, Lochgelly; Young, Leith; Fairbain, Cupar; J. Thompson, Lurgan; Player, McArthur, and A. Baird, Edinburgh; Professors Baird and McFadyean, Edinburgh; and Dr. Woodhead, Edinburgh.

Messrs. Day, Manuel, McGregor, and Bennett were present as visitors.

The minutes of the previous meeting having been confirmed, the SECRETARY intimated that the membership of the society was over forty, and sixteen honorary members.

The PRESIDENT then read a paper on "Malignant Aphtha in Sheep," at the same time exhibiting preserved specimens and drawings illustrating the lesions found in that disease.

The term Aphtha is most commonly applied to an eruptive affection localised within or upon the buccal membrane, mostly seen in young animals, and ordinarily known as "Thrush." This form of disease is, as a rule, benign in its nature. The eruption partakes distinctly of an aphthous character, is seldom followed by ulceration, and runs its course in a few days without any material damage, locally or otherwise, to the animals affected by it; and while it is most frequently seen in young animals sucking their dams, it is also occasionally seen in adults as the result of gastric or intestinal derangement, or as the result of the local action of some irritant such as acrid vegetable matter. Moreover, it has been attributed by some pathologists to the action of a fungus, the *öidium albicans*, while by others this fungus is not accredited with having any causal relationship to the disease, but is thought to be merely present as an accidental entity or as a concomitant.

In his admirable course of lectures on cattle pathology, Professor Simonds, during my pupilage, used to direct attention to a form of Aphtha affecting sheep and calves (first seen by him in 1832) which was characterised by a buccal eruption of a destructive character, and which in the case of sheep was preceded by similar eruptions on the udder and teats of the ewes. Professor Simonds attributed the disease to hæmal depravation or degradation arising out of improper or injudicious manuring and feeding, coupled with unfavourable atmospheric conditions. I confess that prior to the present season I was of the same opinion, and I think I am right in saying that a similar view is entertained by other veterinary surgeons in this country. Several years ago Professor Axe recorded some cases of this nature which in his opinion were originated by the action of vetches that were not only infested with caterpillars and different forms of insect life, but which were also mouldy and decayed.

The past season has been most noteworthy for the existence of large numbers of these cases. In Scotland it has occurred, so far as my information goes, most largely in the eastern counties; in England Professor Duguid and Mr. Olver, of Tamworth, have each met with extended outbreaks of the affection. That the unusually severe weather prevailing in the latter months of winter and during spring has had much to do with this excessive prevalence there can, I think, be little doubt; but by this I do not wish it to be assumed that I consider that these influences are, in themselves, sufficient to originate the disease; probably the casual entity in the form of a micro-organism has always existed, but the lowering effects of the adverse influences to which I have alluded must have rendered parturient animals peculiarly predisposed to the attacks of enzootic or epizootic maladies.

Sheep breeders and shepherds are quite familiar with, and are prepared to have to contend with, a certain percentage of cases in the udders of ewes, which they are in the habit of describing as "chaps," "cracks," etc., and probably this fact has largely tended to mislead them as to the destructive characters of the prevailing malady, and has thus been the means of materially increasing their losses.

Before proceeding to notice the characters of the affection under consideration it will be well that we should devote a brief space to the discussion of its nature.

The word aphtha is derived from a Greek word signifying "I inflame," and it is usually applied to an inflamed condition of the skin or of a mucous

membrane, accompanied by an eruption of minute vesicles, often in successive crops; or by rapid proliferation, degeneration, and desquamation of the epithelium or of the epidermis; this being followed by regeneration, and little or no loss of substance.

Now, how far does Malignant Aphtha conform to this description? Only to a very limited extent, or rather, I should say, that it extends far beyond it. That there is inflammation of the structures involved is unquestionable, that there is any vesicular eruption is doubtful, or at least if it does exist it is of very short duration, so short in fact that one would require to pay particular attention to individual cases, and watch closely for its advent in order to detect it. If we look at the primary eruption on the skin of the udder and thighs of the ewe, we find in some cases a distinct Erythema. This is followed by the formation of discrete pustules—possibly preceded by vesication—about the size of a vetch seed to a large pea, and succeeded from twenty-four to forty-eight hours by the formation of a sore which gradually becomes enlarged in a circumferential manner, and ultimately becomes covered by a crust or scab, underneath which a destructive or ulcerative inflammatory process is progressing. This diffusive or spreading tendency ultimately leads to confluence of the eruptions, and if any irritation is applied, *e.g.*, by the hand of a milker or the mouth of the offspring, in the case of the teat, or by the attrition of the udder against the inner surface of the thighs, very large sores are formed and the destructive process is extended. If the scab is prematurely raised, minute granulations, interspersed with depressions, as the result of loss of substance, are exposed.

In the case of the worst sores, healing is materially prolonged, and in fact is carried on by circumferential cicatrisation, much in the same way as is sometimes seen in the mammary eruptions of sows in Swine Fever.

In other cases the Erythema is less marked, and numerous papulæ about the size of a small pea are scattered over the surface of the udder and the teats. These are followed by a breach of surface without distinct pustulation; or pustules form on their summits. But, as in other affections of an allied character, the papulæ may fade and nothing more serious than desquamation of the cuticle may occur.

These lesions differ widely from Aphtha, as it is ordinarily understood, and approach more nearly to the characters of Variola; indeed, so striking has the resemblance in some cases been that had I not been conversant with the fact *that Sheep-pox is always an exotic affection*, and that the animals which have come under my observation could not possibly have come in contact with foreign animals, and, further, that none but lambing ewes have been permanently affected, I should have been inclined to think that I had to deal with outbreaks of Variola Ovina.

There is no disease with which I am acquainted that more closely resembles the one under consideration than the eruptive affection we meet with in cows and that which we have been in the habit of designating "varioloid,"—a disease I may observe that has recently been prevalent in this neighbourhood and to which I have applied the term *Pustular Fever*. The incubative stage differs but slightly in each case; their lesions show, within certain limits, striking analogies; their course is on the whole identical, but, so far as I have been at present able to determine, a wide divergency occurs in the fact that in the cow the malady is non-infective, except by inoculation, to the offspring.

The ulceration of the lips of the lambs is similar in character to that which I have seen in calves when sucking cows while suffering from severe forms of Foot-and-Mouth Disease.

Taking into consideration the nature of the lesions and of the constitutional characters of this malady, I am of opinion that, as applied to it, the term

Malignant Aphtha is a misnomer; and that "Pustular Fever" or "Contagious Ecthyma" should be substituted for it.

Characters of the Disease.—Postular Fever primarily affects the dam, but so soon as the pustules burst, or a breach of surface is produced, infection of the mouth and of the skin of the nostrils and of the lips of the suckling follows. The site of the eruption may be at the edge of the lips or of one or both nostrils or the gums, most largely the labial aspect of the gums and the incisor teeth. At the outset the eruption on the skin presents itself as a raised inflamed patch, but it is quickly followed by a breach of the surface, and the formation of a rapidly spreading or extending sore, which becomes covered with a distinct crust or scab of tolerable thickness and firmness, and if this is lifted or detached a suppurating and ulcerating surface is exposed. On the mucous membrane there are also circumscribed patches of inflammation, the surface of which appears to become aphthous or postular. This is succeeded by distinctly marked ulceration extending through the mucosa, and this again by the throwing out of croupous masses which may be readily mistaken for granulations. This croupous process is often followed by the formation of bodies which may assume very large dimensions. The teeth become loosened and frequently fall out, not only as the result of involvement of the alveolar membrane in the ulcerative process, but by virtue of the pressure exerted by the granulations.

As in other forms of Ulcerative Stomatitis, so here, the ulceration extends not only by continuity, discrete ulcers becoming confluent, but by contiguity also; thus, if an ulcer forms on the border of the lower lip, the opposing part of the upper lip rapidly becomes infected. And even in the case of the ewe, an ulcer on the skin of the mammary gland will extend by contiguity to the skin of the thigh without primary redness, papulation, or postulation occurring, and this extension is more certain to take place if the skin of the thigh is by any means wounded; while contact of the discharges from the sores with an exposed cutaneous surface not only on the body of the sheep but of at least in one other species of animal, invariably excites the formation of a lesion identical with the primary ulcers.

The general and constitutional conditions observed in the ewe are those of fever; the temperature varies from 103° to 106° F., occasionally 107°. The conjunctives are injected, the pulse rapid, and the respiration more or less disturbed. In the milder cases the lacteal secretion is not materially diminished or altered, and there is a sufficiency of milk to satisfy the offspring, nor is there any marked wasting of the body; but in the more severe cases not only is the secretion of milk suppressed, but emaciation proceeds apace, the animal becomes weak and depressed, the pulse very rapid and feeble, and all the normal functions are more or less interfered with; death resulting either from exhaustion or Septicæmia, or in consequence of the occurrence of some important complication.

The complications to be dreaded are gangrenous inflammation of the mammary gland (so-called Udder Clap), or a low form of inflammation of the lungs or of the serous membranes, particularly the pleura.

The mammitis is in some cases due to blocking up of the orifice of the teat or teats, in others to septic contamination, and when once sphacelus commences (and it usually does so around the base of the teat) it rapidly involves the whole of the gland, and may extend to contiguous structures.

By some this destructive mammitis has been likened to the infective ovine mammitis recently described by Professor Nocard as being of frequent occurrence in certain districts of France, but I am in a position to say that there is absolutely no resemblance—with the exception of the ultimate end being in each case gangrene—between the two maladies.

The lung and pleuritic complications are of a low type, resembling the

complications of Influenza and allied affections, and the pleuritic products are of a highly infective character.

On *post-mortem*, Dropsy to a greater or less extent of the pericardium, the thorax, and the abdomen is present, even when there is no trace of inflammation of the serosæ; and this fact, coupled with the existence of systematic extravasations in some cases, is sufficient to indicate the constitutional nature of the disease, quite independently of the occurrence of specific local lesions.

The constitutional conditions observed in the lamb are also those of fever; but in mild cases, or so long as the lesions are localised, the animal's general health is not materially affected, the appetite is good, the animal is lively, and there is no marked interference with nutrition.

In very many cases, however (and doubtless the number of such instances has been largely increased by the interference with the natural functions of the skin, and by chill resulting from the inclement weather), the general health is materially affected; the animals wander mopishly about, with head depressed and ears lopped, and emit a miserable baa! There is a catarrhal discharge from the nose, stiffness of the limbs, and profuse Diarrhœa of a very exhausting character.

In one or two instances which have come under my observation there has been Catarrhal Inflammation of the interdigital skin of one or more feet, but this may have originated quite independently of the constitutional disorder may, in fact, have only been a form of "dew scald."

The most dreaded and most fatal complications met with in lambs are Pneumonia, Pleurisy, or Pleuro-pneumonia, and in some instances Peritonitis. The pneumonic lesions bear a close resemblance to those of Swine Fever, while the Pleurisy is always of a septic character. Peritonitis is in a small percentage of cases associated with, and is doubtless due to, Omphalitis or Omphalo-phlebitis. In those cases in which Diarrhœa has been excessive Muco-enteritis is detectable on *post-mortem* examination.

The *treatment* of this malady is under ordinary circumstances satisfactory and simple, but when the lowering effects of exposure, neglect, and improper feeding are superadded, it becomes very unsatisfactory, and of little practical use.

The conditions necessary for securing success in treatment are that the cases shall be attended to immediately on the advent of the local lesions, that the patients shall be protected from the adverse influence of cold and wet, and particularly from east winds, and that they be generously fed.

So far as the lambs are concerned, they should be removed at once from the ewes and fed artificially, and the milk should be carefully removed from the udders of the latter by the hand, great care, however, being exercised in the process to avoid irritating the sores. The use of the syphon, except in those cases where the apices of the teats are encrusted with scabs, is not advisable, and in any case it should be carefully cleansed and asepticised before it is used. If gangrene is threatened the teat or teats should be immediately excised, the gangrenous area slashed and asepticised, or, if means are at hand, irrigated with an antiseptic or disinfecting solution.

The sores on the mammæ and thighs of the ewe should be cauterised at the outset, and subsequently dressed with mild antiseptic and astringent applications, but irritation by friction or otherwise should be strictly avoided.

In the case of the lambs the adoption of an abortive system of treatment is advisable—*i.e.*, if they are removed from the ewes immediately on the advent of local lesions. It is useless in those cases which have been neglected, or where the lambs have been allowed to suck the ewes for too long a period. The choice of abortive agents must be regulated to a large

extent by the character of the lesions in particular cases. Personally I prefer iodised phenol.

Systematically the administration of mild laxutives and blood medicines is indicated, both in the case of the ewes and of the lambs; and when Diarrhœa becomes excessive in the latter, skim milk mixed with lime-water should be substituted for sweet milk, and digestion further assisted by the use of some preparation of malt. It is not, in my opinion, wise to check the Diarrhœa unless it becomes excessive, as it may be the means, to a large extent, of depurating the blood, but if it is allowed to continue, it may, of itself, produce death by exhaustion.

Strict isolation of affected animals ought to be practised, and that, too, at as early a period as possible. I am in possession of the most indubitable proofs of the infective and contagious nature of the malady, and all our old ideas as to the disease having simply a dietetic or local origin must be relegated to that limbo where so many ideas have gone during the last decade.

Professor Walley also submitted the following specimens :—

(1) Aneurismal varix of the spermatic vessels of an ox, a very remarkable specimen. The description given by the Professor was highly interesting.

(2) Traumatic Pericarditis in the cow, accompanied by fatty encasement of the heart. Professor Walley said that this case did not present any marked characteristic, so far as the pericardial and epicardial lesions were concerned, to distinguish it from hundreds of similar cases met with by veterinary surgeons. There was the usual thickening of the membranes, with the outgrowth of innumerable granulations from the free surface, the intimate adhesion of the peri- to the epicardium at the point of penetration of the foreign body, which was still *in situ*, and general hypertrophy of the heart itself. But there was an important addition to the lesions usually observed in these cases—viz., the deposition of a layer of adipose tissue under the epicardium, which in many places attained a thickness of over an inch. The pressure exerted by this deposit has caused extensive absorption of the cardiac muscle, and must have interfered materially with the contractile power of the heart during life. He thought there could be little doubt that the exciting cause of the deposition was the persistent irritation caused by the foreign body. He had twice previously met with similar conditions in organs of the cow—viz., the spleen and the rectum.

(3) Unusual skin lesions of Swine Fever in sows. In submitting these specimens the President said that during the course of a recent outbreak of this disease, in which there was an entire absence of general skin lesions in the case of a young sow, he observed a number of diffused sores on the skin of the mammæ mainly around the base of teats, and in some involving them. On first examining the sow he thought the sores might be due to friction from the mouth of the pigs, but closer examination showed that the lesions were of a specific character. He ordered immediate slaughter of the animal, and on *post-mortem* examination the characteristic intestinal lesions were discovered.

About ten days subsequently another sow in the same piggery presented similar conditions.

(4) Entozoa forwarded by Mr. Edward Stanley, Government Veterinary Surgeon, New South Wales. These comprised several specimens of *Spiroptera Megastoma, Strongylus Tetracanthus, Strongylus Armatus*, and *Tænia Mamillana* from the horse, and *Strongylus Hypostornus* from the sheep.

Dr. WOODHEAD said, with reference to a deposition of fat around the heart in a case of Traumatic Pericarditis, that it had forcibly reminded him of a similar condition commonly met with in cases of granular contracted kidney of the human subject. In the latter case it was evident that the deposit of

fat was secondary to the atrophy of the kidney, and the same was seen in the case of other organs. It had therefore occurrred to him that the thinning and atrophy of the heart-muscle in the case of the cow's heart was probably the result of the Traumatic Pericarditis, and not of the fatty deposit, which would be likely to ensue as a sequel to the cardiac atrophy.

Professor McFADYEAN said that he had been most interested in the remarkable form of skin lesions from Swine Fever cases exhibited by the President. He thought they were quite unique, inasmuch as they were almost identical in their naked-eye appearances with the common-ringed ulcers of the bowel. It seemed as if the specific organism of Swine Fever had in these cases taken up its position in the skin, and had there set up a necrotic process similar to that excited by it in the mucous membrane of the bowel.

Dr. WOODHEAD exhibited and explained a series of large mounted sections illustrating Tuberculosis and other diseases of the human lung, in order that the members might have an opportunity of comparing such conditions with those met with among the lower animals. He also showed under the microscope specimens of the *Bacillus Tuberculosis* from human sources, for comparison with examples of that organism which Professor McFadyean exhibited from the domestic animals.

Professor McFADYEAN submitted the lungs of a cat showing Tuberculosis, and specimens showing the lesion excited in the lungs of sheep by the *Strongylus Rufercens.*

The microscopical and other specimens were very interesting, the members present thoroughly enjoying the clear and lucid description given by Dr. Woodhead.

On the motion of MR. A. BAIRD, a hearty vote of thanks was accorded to Dr. Woodhead, Professors Walley and McFadyean.

W. D. FAIRBAIRN, *Hon. Sec.*

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

A MEETING of the above society was held on June 20th, in the London Hotel, Edinburgh, the President, C. Cunningham, Esq., in the chair.

There was a good attendance. The minutes of the previous meeting having been read and confirmed, the President notified the purchase of the Thompson Tooth shears and despatch box, property of the late society, and further that by agreement the minute book of the late society had been deposited with the Highland and Agricultural Society. The following new members were nominated:—James Borthwick, Kirkliston, by Prof. W. O. Williams; H. Thompson, Aspatria; J. Black, Howgate; J. Brown, West Calder, by the President.

The President then delivered his inaugural address, as follows:—

GENTLEMEN,—The end of an old society, and the beginning of a new, leaves its mark on our history. For twenty years some of us in our society life have, as it were, been journeying together. A few months ago we broke the journey. We are off with the old and on with the new, and before starting afresh it may be well just for a very little to look back on the way we have come, and forward to what may be in store for us. How has it fared with us and our profession these few years back? What is our probable future?

A glance such as this—and it must be but a glance—brings with it mingled feelings of pain and pleasure. Some who were with us ten and twenty years ago are not with us now, though it is a matter of congratulation that almost all the members—original and otherwise—of our old Scottish Metropolitan Society remain. There is, however, one notable exception. Our first President, the late Professor Robertson, then Mr. Robertson of Kelso, has passed away. "A good man," truly says one of his contemporaries, "has gone to his rest." Few men we daresay knew

more and had experienced more of the pleasures and vexations of a country practitioner's life, but neither the work nor the worry nor the lack of leisure and opportunity could bind Mr. Robertson down to the rôle of an ordinary veterinary surgeon's life. "Science with practice" seems to have been his motto, and when at but very short notice he was called to fill one of the highest, if not the highest and most responsible post in his profession, he was ready and willing and able. He was one as a member of our Scottish Society, as a Scottish veterinary surgeon, not less than as Principal of the London School, of whom we were always proud, and his loss is felt deeply.

A life of this kind, gentlemen, I trust you will excuse my saying, teaches a lesson. "Science with practice" or at least "Practice with science" should be the motto of every veterinary surgeon. Are some of us not a little apt to forget it?—to cultivate well the practical work of our profession, and to pride ourselves on our plain practicability, while we neglect the scientific part, and lay it on the shelf as a matter that does not pay, and with which we wish to have little to do. Many of us have our little pleasures and pleasant places. But we fear a comparatively smaller number have and systematically use their own special little laboratories and scientific apparatus, their little dissection rooms and studies. The cost and time is about the same in either case—are the desires equal?

Five years ago the Council appointed only veterinary surgeons as examiners. This year they have returned to the former practice of appointing specialists in certain subjects, drawn from the ranks of the medical profession, tacitly acknowledging the inferiority of their own graduates. Why should we not have specialists drawn from our own ranks? A veterinary surgeon—in all belonging to his profession—ought not now-a-days to be behind his medical neighbour. What is to hinder a few at least from rising to be specialists in chemistry, in botany, pathology, morbid anatomy, and allied subjects?

A short time ago we read that the Royal College of Physicians of Edinburgh had established a laboratory for the purposes of research in all subjects bearing upon medical science. A large house has been leased, and the premises converted from their old to their new use. We read, too, that it would be difficult to find a laboratory in Britain more thoroughly equipped for the purposes to which this one has been set apart, and that already there is a small army of diligent workers in the various departments. What the Royal College of Physicians of Edinburgh alone has done on such a large scale, may not the veterinary surgeons of Great Britain and Ireland hope in time to imitate in humbler guise? Depend on it if the medical faculty find it necessary and to their advantage thus to establish laboratories and give facilities for their fellows, members and graduates thus to prosecute research the time will come when the veterinary profession will have to follow in their footsteps. "Recent advances in science," it has been said, "have opened up a new germ world for investigation, full of marvels undreamt of by our forefathers." And we or those who come after us will be compelled to leave the old ruts and follow on. All honour to our teachers and schools and others for what they have already done in this respect. All over the country at the present time we have practical men—men of practice and skill, thoroughly up to their work, in whom every confidence can truly be placed, men of whom the veterinary profession may well be proud. May she in the future in addition have also added to her ranks still more men of science—specialists in the true acceptation of the term, in everything worthy of investigation.

Closely allied to the scientific aspect of our calling is the question of "Vivisection." A burning question not many years ago, and even yet far from settled. Vivisectors and non-vivisectors battled against each other;

the Anti-Vivisection Act, with its licences and restrictions, was the result. We confess that our sympathies in the main are with the poor dumb animals. No doubt when scientific men make discoveries, it is a hardship that they are not free to conduct experiments to verify or falsify their statements. Much of our physiological and pathological and surgical knowledge comes from vivisection. Our primary amputators, vaccinators, inoculators, ovariotomists, abdominal and thoracic operators and such like were simply vivisectors, doing their best for suffering men and animals. Still admitting this, I think we will all agree that the less vivisection the better. If for the sake of science and humanity severe and cruel operations must occasionally be performed on the lower animals, that is no reason why every one should have liberty to repeat them *ad libitum*—let these operations be performed by such thoroughly skilful hands and in presence of such reliable witnesses that a repetition of them may not be required. The licensing system, though it presses hard on individual cases, yet on the whole seems a natural and not unfair solution of the difficulty. Our main objection to it is the constitution of the licensing body. We think it very hard that men of science, known for their skill and humanity, should have to ask leave from the Home Secretary, or those whom he chooses to consult or appoint. Great must be the political, agricultural, metropolitan, and general public mind. It fills our licensing boards, our contagious diseases local authorities, our departmental investigation committees, while members of the medical and veterinary professions are kept out, and are at the beck and call of men who practically know little of the subjects with which they are called to deal.

Under the licensing system, however, a good few experiments appear to be still in progress. This last year, 1887, it is stated that the total number under 64 licenses was 1,220, the number in which pain was unavoidably inflicted was 71, no anæsthetics being used, as tending to interfere with the result. Comparatively few vivisections properly so called were, however, practised—and in these antiseptic treatment to the wounds was generally adopted. In the future, as time mollifies the different opinions, I think we will find that vivisections will find their true level, and be only practised for good and wise ends, that cannot absolutely be attained otherwise.

Turning to practice, gentlemen, we find during the past few years many interesting events and changes have occurred. Some discoveries and new remedies have also been mooted. The more general adoption and use of the hypodermic syringe—the discontinuance in a great measure of bleeding—the non-blistering as a general rule in chest affections—the more general recognition of twist and displacement of the bowels, and of torsion of the uterus—the disappearance from our midst of Rinderpest and Foot and Mouth Disease—the rapid and alarming increase of Pleuro-pneumonia contagiosa during the last two years—the success of inoculation, and the adoption by Government of "Stamping-out"—the prevalence of Rabies at certain seasons, with Pasteur's process of cure—Tuberculosis, its widespread existence, and the attention which is now being paid to it—Actinomykosis, Azoturia, novel operations for Sidebone, Roaring, etc.—these and a host of others suggest themselves as topics on which much has been, and may yet be said. Societies such as this need not want subjects to discuss. We will, however, content ourselves with a few passing remarks on Pleuro-pneumonia and Tuberculosis as engaging much public interest.

Among those interested in the treatment and eradication of Pleuro-pneumonia we distinguish four classes:

1. Those in favour of "Stamping-out." Men who on the appearance of the disease—no matter how numerous the cattle or how valuable the stock—would within ten days slaughter every animal in any way exposed to the

contagion, as the only really effective measure for the eradication of the malady. These men at the present time have carried the day. They have matters very much their own way. The slaughter order is in force. The poleaxe is resounding on hundreds and thousands of heads. In the three weeks ending 21st April last, 943 healthy and 163 diseased animals were slaughtered in the United Kingdom; 1,100 in three weeks, about six healthy to one diseased, is a fair number. Some counties have plied the slaughter axe till their expenses reach £10,000 and £15,000. Let us hope that this drastic expensive measure may prove soon whether it is all that advocates so strenuously assert, for at best stamping-out for Pleuro-pneumonia in cattle is cruel, bloody, brutal work. To go into premises and slaughter a stock of 60 or 100 animals because two or three of their number are affected with Pleuro, and partly ruin in the case of a dairyman the owner's business for a month or two, is surely a very cruel proceeding, paying only too the bare price of the cows. Yet this has frequently happened, and will happen in stamping-out.

2. Those in favour of inoculation. Men who have heard of and seen its good effects, and experienced its benefits, men who have gone into the worst cases and outbreaks of the disease, and easily and without difficulty done away with it in a very short time, with little loss of animal life, at small cost to the ratepayers, and with but trifling inconvenience to the owners, and men who meeting with such satisfactory and successful results, see no good reason for the adoption of such a drastic cruel course as stamping-out in this disease.

3. Those who practise inoculation, and yet advocate stamping-out.

4. Those who can do without either inoculation or stamping-out, who hold the thermometer at a discount in Pleuro, who by the aid of their own unaided faculties can easily detect the disease, and by the slaughter of the first few cases put an end at once and always to its progress, men who from first to last have refused to examine and test inoculation, and ignorant even of its preliminaries, yet presume to pass an opinion on its merits, and jeer at its advocates.

The action of Government and the Privy Council in their dealings with inoculation is singular. They admit in the main its virtues, but they have always looked askance at and never recognised it. They have leaned to stamping-out, and ultimately adopted it. They have practically killed inoculation, and now with a "Jedder" sort of justice, they have appointed a Departmental Committee to inquire into its merits. They have practically put a stop to the work of the inoculators, and lately summoned a few of them at short notice, and without remuneration, before their Committee to give an account of it. "Hang inoculation first and try it afterwards" has been the motto of the Privy Council and their advisers. Those who have practised and are in favour of inoculation can, however, afford to smile at such treatment and submit to it with patience. They have the satisfaction of knowing that they have done good work, practising scientifically a most valuable process for the eradication and suppression of the most formidable and insidious of our bovine scourges—saving animals, saving money to the country, doing valuable services to their clients and districts, and gaining credit to themselves and their profession. Wide and severe as have been the ravages of Pleuro-pneumonia of late years, the effects, as has been truly said by Professor Williams, would have been tenfold worse but for inoculation. It is to be hoped that we will now have temporary, if not lasting immunity from it, but if the services of inoculators are ever again needed, I am certain that in the future as in the past they will be given cheerfully, ungrudgingly, for love of their profession and their patients.

It has been said that inoculation has been received with enthusiasm in

Scotland. The enthusiasm is easily explained. Pasteur's work has created the very greatest enthusiasm, and rightly, too, all over the world. He studied fermentation, and greatly improved the manufacture and preservation of beer, wine, and vinegar. He turned his attention to the silk-worm disease, put practically an end to it, and restored an almost lost industry to France. His researches in Splenic Fever, Swine Fever, and Rabies, and his grand systems of preventative inoculation, have been of incalculable benefit. He discovered the cause and pointed out the cure, the true and best application of science to practice. The man who discovers the microbe does well, but he who can stay the disease and do away with its effects does still better. So with the inoculation in question. Pleuro-pneumonia had long been the bugbear of our profession, the scourge and dread of the stock-owner and breeder. We could do but little for it, till the process of inoculation, as introduced here by Rutherford, changed completely the aspect of affairs. Now we care little or nothing for the disease, we can deal with our old enemy, and put him under foot. We know that inoculation will stay the progress of the disease and confer immunity from it. We can clear our districts, and as for those much talked of animals with patches remaining, producing, and spreading disease, we have not met with one. Our enthusiasm is justifiable and well-founded, and had inoculation been taken up all over the country with the enthusiasm it deserved, there would have been small occasion for the slaughter order and its concomitant, the poleaxe. By the lukewarm attitude of many of its members towards inoculation, the veterinary profession has lost, in our opinion, an opportunity of distinguishing itself that may not soon recur.

Tuberculosis—a disease much talked of at present, and likely to be the subject of eradicative legislation before long. It is well known, and has long been known to us all—too frequently we are called on to recognise it, in dairies, and on dairy-farms specially. We think it is on the increase among the Ayrshire breed, attacking many organs—serous membranes, lungs, liver, uterus, udder, the various glands, etc., and presenting many and various appearances, from the slight roughness and little millet-seed eminences on the surface of the membranes, to the excessively large calcareous indurations of the udder and glands, and the softening, breaking-up masses and abscesses in the substance of the lungs. A very loathsome disease in its advanced stages.

We all have our cases. Only last week we were called to a working-man's cow, and *post-mortem* examination showed disease of twelve months' standing, while the cow during ten months of that time had milked well, and the man's family and neighbours had regularly been supplied with the milk. The week before last we examined the carcass of another cow which had died, saving slaughter, and found an old case of at the very least two years' standing; and the cow had been a good milker, and been one of a dairy stock in full working order for the supply of fresh milk to customers. In April last, in slaughtering fourteen cows, in execution of the slaughter order, for contact with Pleuro-pneumonia, we found them all free from that disease, but four of them subjects of Tuberculosis, only one of them showing any sign when alive of the malady, while the worst case of the lot, a cow whose chest and abdomen was literally a mass of tubercular deposition, had apparently been well enough, and no suspicions were entertained of anything being amiss with her.

These cases—and they are but common cases to which any of you can furnish parallels—show the prevalence and insidious nature of the disease, and its importance in regard to our meat and milk supply.

In an advanced stage the appearances after death are so repulsive that we are all agreed that the carcass is unfit for human food, and should be

destroyed, but in the first stages, when only little pin-head-like miliary tubercles show on the pleura and peritoneum, and the flesh appears good and well-nourished, should the carcass be buried or consigned to the boilers? This question calls for attention.

Milk is one of the best media for the conveyance of the germs of disease, and the working-man's children and the dairyman's customers, in the cases we mentioned, were unwittingly and unintentionally, but not the less truly, supplied with it *ad libitum*. Will many cases of Tuberculosis follow? There are at least 300 dairies in Edinburgh and suburbs. Say there is one tubercular cow in each byre—an estimate far under the mark, we believe—that gives 300 affected subjects; and thus we have Edinburgh supplied with, and regularly supplied twice each day for years, with fresh milk (diluted, of course) from, to put it moderately, 100 tubercular cows. Will our medical friends kindly tell us whether the prevalence of Tuberculosis or the disease it simulates in their patients, Phthisis, is in anything like ratio to this number?

A butcher at an auction sale buys a big, fresh-looking animal, and on being slaughtered, the inspectors seize the carcass as unfit for food from Tuberculosis, by no means an uncommon case. Does not the man deserve, and should he not receive compensation? We think he should. An inspector under the Contagious Diseases (Animals) Act is called in, in terms of the Act, to a suspected animal, and diagnoses Tuberculosis in an advanced stage. Should he not have power through his local authority to slaughter that animal for the public weal, and advise moderate compensation to the owner?

Leaving the bigger and more important questions of meat and milk from tubercular subjects to the further investigation which it will soon apparently receive, we would simply say that the sooner a determined effort is made to root out Tuberculosis from our herds the better. The disease is hereditary—it appears on the increase—its loathsome character, and the possible danger, especially to young children, from it, all mark it as one with which the Government and the machinery of the Act should at once cope. For years and years veterinary surgeons and inspectors have urged that Tuberculosis should be scheduled under the Act, if not as a contagious disease—though we have seen it to all appearance contagious—then under some better name. Let this and kindred societies take the matter up, and aid and assist and co-operate with all favourable to this scheme. The Privy Council is long in moving, but always responds to persistent and well-grounded agitation, and let us hope that its response may be scheduling of Tuberculosis under a special slaughter-order, and its rapid decrease and extinction. Give the inspectors to the Privy Council and local authorities power to deal with the disease; in all deserving cases give moderate compensation, and root it out. A tubercular cow is no good to any one—an ultimate loss to her owner, generally an unhealthy, unthriving subject, and a danger to the community. The question of Tuberculosis is about the most important at the present time, and I would advise its discussion at an early date.

This question also leads to a consideration of our standing of veterinary inspectors under the Contagious Diseases (Animals) Act, but on it we have not time to enter. Veterinary inspectors in the past have done good service to Government and the country at large for very scant remuneration. What about the future? Should not our remuneration be increased? Should not veterinary surgeons enter largely into the composition of the local authorities in time coming? Are they not better qualified for the work than agriculturists and commissioners of supply? I leave the question with you.

Into veterinary politics, too, we will not enter, further than to say that great

changes have taken place during the last twenty years or so. The change of the mode of election of candidates for Council, the cessation of the Highland Society's examinations, and the easy admittance of its certificate holders to the Royal College of Veterinary Surgeons, the passing of the Veterinary Surgeons' Act, the erection of the new College buildings, etc. The latter we lately had the opportunity of seeing, and very pleasant and comfortable they appeared, the Council-room especially, with its stained glass windows, mostly contributed by veterinary medical societies, and imposing presidential chair. Already from their niches of fame look down really excellent portraits of Turner, Fitzwygram, Fleming, and Greaves, and when the other vacant places are filled the effect will be still more pleasing. We can imagine no higher honour for a staunch supporter and good worker in the cause of the Royal College than thus to be handed down to posterity in the former scene of his labours. To an old Highland Society man and Scotsman like myself, the pleasure, however, was not unalloyed. London centralization seemed to pervade the scene; not many Scottish practitioners nor men from the North will find their way there to take their proper part in the government and guidance of their profession—the men really cannot afford the time, to say nothing of the expense. As in the past, so in the future, Southern men will predominate in the Council-room and Examining Board of the Royal College of Veterinary Surgeons. Time was when there was some talk of a charter for Scotland, a Council and Examining Board for ourselves, but that time has passed away. Time was when some at least of the practitioners in Scotland were accounted not unworthy of being Examiners, but now-a-days matters are changed. The Examiners of the Royal College are appointed, we are told, on their merits, and not a practitioner in Scotland is accounted fit for a place on the practice tables, far better men hail from England. Botany, materia medica, and the A B C of anatomy only can safely be left to the poor dwellers in Scotland, and that only after they have passed that wonderful ordeal, the Fellowship Examination. At the present time Scottish practitioners are powerless to return one man by themselves to Council, while each examining term quite a host of men from England cross the Border to decide the fate of students taught at Scottish schools. When a Scotsman goes to England his mind and body, and perhaps purse expand, and he is soon well qualified for both Council and Examining Board, but the Scotsmen who stay at home, and quietly and honourably and without ostentation practise their profession, are rarely heard of.

What would the country think if all our Parliamentary boroughs, city divisions, and counties were done away with and the House of Commons filled by general plebiscite? How would the medical profession look if all the Scottish faculties were swept away and one huge Royal College of Physicians and Surgeons substituted, into whose council and examination boards medical men practising in Scotland were but sparingly admitted? Yet that is precisely the position of the veterinary surgeons in Scotland at the present time, and, strange to say, they seem perfectly pleased and satisfied with it. Will this state of matters continue, or will in the future a change for the better come over the spirit of the dream? We hope so.

The schools and students is an interesting subject, but we must forbear entering on it. In your name we think, however, we may convey most sincere congratulation of the fine buildings all of them now possess, the numerous and well-educated students, the higher standard of education and scientific and practical training sought to be attained, the high stamina of the teachers, and the general excellence of all the institutions. There is only one little drawback—the hooting, egg-throwing students are but recent creations; may their grievances be redressed and the race become extinct.

Veterinary literature for the last twenty years is a theme by itself, and can

boast now of not a few really most excellent standard works that redound to the credit of their authors and are an honour to the profession at large. Of other smaller productions, the less said the better. "A handy book for the farmer," "The Cow-calfer's Guide," "How to do without the veterinary surgeon," seems to be their motto. Another bird of doubtful plumage is the veterinary editor of the sporting or agricultural newspaper. Anybody can get his best advice for less than a penny. From such may our society be kept free. Relegate them to their journalistic friends, they are not wanted here. I trust I speak your sentiments.

And now, gentlemen, a very few words in closing on our society. In the words of our minutes, we understand it is to be and remain a practitioners' society, totally unconnected with any college or school. A society mainly for men in every-day practice, to whose meetings they may come three or four times a year and spend an hour or two with pleasure and profit; meetings which they must endeavour to render interesting by the introduction of unusual cases or specimens, at which they may ask and give advice, all on an equal footing, in whose discussions each and every member it is hoped will take a part, however short and small. To country practitioners especially, we know from personal experience a society of this kind is almost indispensable. Out in country districts, away from the centres of light and learning, we too soon get rusty and old-fashioned, and nothing tends more to rub off the rust and keep us abreast of the times than a really good society reunion and profitable conversation. After our recent unpleasant experiences, nothing short of our being convinced (speaking personally) of the absolute necessity of having a veterinary medical society would have induced us to again embark on the undertaking. We cannot do without a society, and the members have it in their hands to make of it what they will.

Over the entrance to our membership, gentlemen, I think we must watch, and watch carefully. Numbers don't make a society. Our old society's most profitable meetings were, we think, when our numbers were small. Numbers are certainly desirable, but I would rather have a society of twenty really good members, all on equal terms, taking part pleasantly in the discussions, than a society of a hundred with half-a-dozen speakers and the rest mere silent followers. To young men especially I would commend a society such as this, it is just what they need. It should improve them in every way, in public speaking, an accomplishment almost indispensable and of the very greatest value nowadays, in ideas and in practice.

The relation of this society to other societies should also not be lost sight of. Our relations with our friends in the West of Scotland and North of England, and to the National Society, have always been friendly. I trust such may be continued and increased. One desirable feature which I think we should strive after is to have now and again some really good men from a sister society to introduce a subject for discussion. Such a course brings new ideas and life and mutual benefit.

I fear the time has scarcely come when British Veterinary Medical Societies may shake hands and exchange ideas with their Continental confreres. But this, too, in time may come.

In the recent illness and deeply-lamented death of the late Emperor Frederick, we see how close, in times of peace, are the bonds of friendship and sympathy between ourselves and our Continental neighbours. How little, after all, divides us. A good and brave man passing slowly and undauntedly and nobly to his end affects us deeply; it is, as it were, one of our Royal Family, and of ourselves. And as we read of the course of the disease, the affection of the membranes—the necrosis and sloughing of cartilage——tracheotomy—the supposed fistula of the esophagus, the keen controversy as to the cancerous or non-cancerous nature of the disease, the pneumonia

and death, we could realise only too well the deep and fearful pain, so heroically borne, and sympathise with more than ordinary feeling. We too, gentlemen, can understand the rare skill and care which prolonged even such an illustrious life so long. We have not infrequently to perform tracheotomy, though in our patients the operation is simpler and easier; affections, too, of the larynx we have. Let us be thankful that necrosis and cancer of that organ are with us almost unknown.

I fear, gentlemen, I must apologise most sincerely for trespassing so long on your time, and will end by simply thanking you for so patiently listening to my disjointed remarks, and by wishing our new society every success. May it be a source of pleasure and benefit always to all its members.

Some discussion followed the reading of the paper, which was taken part in by Messrs. Borthwick, Thompson, Williams, and the Secretary. Subsequently, by invitation of the President, some interesting cases were brought forward, and some most interesting details of the "operation of castration of colts in the standing position" were given by Mr. Storrie, of East Linton, who had so operated on thirty colts this season, with the greatest ease and success.

A most instructive and pleasant meeting was brought to a close with a vote of thanks to the Chairman, after which several of the members took tea together.

Mr. Storrie, East Linton, introduces the subject of next meeting's discussion.

R. RUTHERFORD, F.R.C.V.S., *Hon. Sec.*

CENTRAL VETERINARY MEDICAL SOCIETY.

AN ordinary general meeting was held at the First Avenue Hotel on June 5th, 1888; Mr. Rowe, vice-president, in the chair, and the following Fellows present: Messrs. Hall-Brown, Edgar, Herron, Hunting, Hurndall, Lowe, Oatway, Rogers, Samson, Shaw, Willis, Wragg, and the Secretary. Mr. Cassie, M.R.C.V.S., and Mr. Morgan Evans were present as visitors.

The CHAIRMAN exhibited the Ruptured Uterus of a bitch, having five distinct perforations.

Mr. HERRON brought forward some very interesting *post-mortem* specimens, consisting of Renal Calculi from two horses and a bull, and the bladder of a sheep showing a large amount of uremic deposit; he also showed a large Cystic Calculus taken from the carcase of a horse, and a fœtal calf in a mummified condition.

The SECRETARY showed the Os Suffraginis of a hack, which had been broken into fifty-four pieces.

Mr. HERRON then read a long and interesting paper upon the method of conducting *post-mortem* examinations, in which he alluded to the entire absence in London of facilities for making successful *post-mortems*, and pointed out the necessity for the veterinary profession taking some action in the matter. Under present circumstances, as soon as the carcase of a horse reached the knacker's yard its thoracic cavity was opened and the abdominal viscera were removed. This being done in the absence of the veterinary surgeon, how could he possibly in many cases give an accurate opinion as to the cause of death? To give a really reliable opinion, the organs should first be examined *in situ*, and then removed.

Mr. HERRON, after alluding to the importance of thoroughly examining the skin, visible mucous membranes, and other external portions of a carcase, directed his attention to the thoracic and abdominal viscera; to examine the latter set of organs he advised that after the removal of its skin the carcase should be placed in an upright position, and not laid on its back, as is usually done. He gave particulars of any easy method of removal of the brain,

alluded to the normal appearance and some of the abnormal conditions which may be found in the blood, the blood-vessels, and the serous membranes, and made special note of the position and appearance of the various viscera.

Mr. EDGAR found the difficulty in making *post-mortems* of the horse was due to the great size of the carcase; in his opinion, the upright position of the carcase was not practicable, and the abdominal viscera could not be examined so conveniently as when the horse lay on its side. In many instances of sudden death a microscopic examination of the blood was necessary, to determine the existence or non-existence of bacilli.

Mr. HURNDALL, while quite admitting the advantages to be derived from some such scheme for making *post-mortems* as the essayist had indicated, feared that the initial expense in such an undertaking would be too great. He quite agreed with Mr. Herron as to the advisability of examining the viscera *in situ*.

Mr. HUNTING feared we were all inclined to be somewhat superficial in our *post-mortem* examinations; he did not think the position of the carcase was of importance so long as the examination itself was thorough. The greatest difficulty he met with in *post-mortem* examinations was to decide how long existing disease had been present. A very frequent condition found was a purulent infiltration of a portion of the lung, with solidification of various densities and slight congestions. How could any attack of Congestion of the Lungs, no matter what its intensity, produce such changes in two or three weeks? In some cases of Congestion of the Lungs he found during the animal's life its breath stinking, and he observed a purulent condition of the lungs after death. All these cases that he had been able to trace occurred in horses that were known to have been previously affected with Congestion of the Lungs, but such conditions were always absent in a first attack.

There was also a difficulty in recognizing the existence or non-existence of Hypertrophy of the walls of the heart. Horses differed very much in size, and their hearts consequently differed. Mr. Hunting then alluded to the present system of making *post-mortems* of dogs supposed to have been affected with Rabies, and he pointed out the necessity of abstaining from smoking when examining the carcases of dogs, as tobacco-smoke obscures the odour of prussic acid and other drugs.

After some remarks from Mr. VILLAR,

Mr. SAMSON pointed out that the existence of foreign matter in a dog's stomach was not diagnostic of Rabies. He had found this condition in Gastritis. He also mentioned that in several cases of Farcy which he had examined he had found the lungs perfectly healthy.

Mr. ROWE considered the fact of our *post-mortems* being so often gratuitous was the reason they were not more thorough. He then alluded to Stringhalt, which disease had never been recognized *post-mortem*. He could not attribute Gastritis in dogs to the presence of mechanical agents in the stomach.

Mr. HERRON having replied, the proceedings were brought to a close with a unanimous vote of thanks to the essayist.

SIDNEY VILLAR, *Hon. Sec.*

YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

THE summer meeting of this Association was held on July 4th, at the Albion Hotel, Leeds, the President, Mr. Philip Deighton, in the chair. The following members were present: Messrs. J. E. Scriven, T. Greaves, A. W. Briggs, A. W. Mason, W. Lodge, H. Cooper, P. E. Pickering, — Hanson, G. Whitehead, J. Clarkson, A. McCormick, G. E. Bowman, and the Secretary (Mr. F. Green-

halgh), Messrs. T. Hopkin, and T. Exley, M.R.C.V.S., Dr. Spencer (York), and Messrs. Robertson, Anderton, and Beauland were present as visitors.

Apologies for non-attendance were read from Professor Williams, Messrs. Dray, Scott, Snarry, Bale, Leather, Phillips (13 Hussars), Danby, G. Carter, and T. Briggs.

Mr. BRIGGS explained that his remarks made at York, in respect to Dr. Fleming and the VETERINARY JOURNAL, had been misconstrued. He maintained that on that occasion he never stated that in the matter of inoculation for distemper he had asked Dr. Fleming for his private opinion. What he did was to address an ordinary communication to the Journal named, which he expected, in the ordinary course of events, would have appeared in the correspondence at the end of the Journal, but Dr. Fleming saw fit to insert what he had written as an original article.

The minutes of the last meeting were confirmed.

A discussion arose as to the venu of the next meeting, and Mr. GREAVES proposed, and Mr. BOWMAN seconded, that the meeting be held in Leeds. Mr. Greaves stated that a few years ago the Society adopted the plan of having their meetings at various towns, but it proved a failure. They considered they were retrograding in numbers, and found they always had the best meetings in Leeds. The position became so serious that it was felt if the Society was to be kept on its legs at all they must stop at Leeds.

Mr. GREENHALGH moved that the next meeting be held at Bradford. He was still firmly of opinion that it was advisable, from various points of view, to hold their meetings in different towns in the county.

This was seconded by Mr. J. SCRIVEN.

On the motions being put, the voting was even; but the casting vote of the Chairman was given in favour of the Leeds meeting.

Mr. HANSON exhibited 22 stones that had come from a horse. The animal was purchased at last Fierby fair. He came to Hipperholme, and had been treated on seven or eight occasions for Colic successfully. On the last occasion, when he was seized, he came in the afternoon and was treated with the ordinary remedies. At night he passed several stones, and next morning no less than nineteen other stones, of various shapes and sizes, were found. That was about three months ago, and that horse had been at work ever since.

Mr. GREAVES said he was in the habit, when a horse was subject to gripes, of coming to the conclusion that there was some impediment in the alimentary canal. On several occasions he had found a stone in the rectum, and had managed to get hold of it and pull it away, thus saving several lives. The subject of inflammation of the bowels was an interesting one, and had been before them at Liverpool and Lincoln. He considered it was attributed to loss of nervous power in the bowels. His treatment was to give anti-spasmodic medicine—nitrous ether and such like. If the animal was not better in half an hour he repeated the dose, and if there was no change in an hour's time, he gave six drams of aloes. Professor Williams differed from him as to the administration of aloes. He (Mr. Greaves) was satisfied, however, that they could give aloes with impunity in cases of protracted abdominal pains, for in getting a passage through an animal they had a far better chance of saving his life.

Mr. PICKERING agreed with Mr. Greaves to a certain extent as to treatment, but thought in all cases of bowel affection, that diagnosis should be most carefully made. When he found a case of obstruction in the bowels, he considered there was nothing better than a dose of aloes, but where the pulse was 70 to 120, and the temperature 104°, he looked upon it as a case of inflammation of the bowels. In cases of inflammation, he invariably bled the animal, and found great benefit from it. If there was paralysis of the bowels, and the smaller vessels were ruptured, he thought that taking away

three to four or five quarts of blood was very serviceable. Where there was an obstruction of the bowels, pure and simple, he thought there was nothing so effectual as aloes and linseed oil, but he never gave more than five drams.

Mr. MASON, referring to physostigmia, expressed the opinion that they might just as well use water, and asked if any of those present had the record of a case where it had been of any good.

The PRESIDENT had the greatest faith in the administration of aloes. He had used physostigmia, but had no faith in it.

Mr. BOWMAN agreed with the aloes treatment, but considered it was very dangerous to use too much.

Mr. HOPKIN, speaking of physostigmia, assured the meeting that if they got the genuine article, they would observe an action in fifteen minutes. The evidence was pretty clear as to that, but if they wanted it right they must prepare it themselves, and it would act without a doubt. He remembered a case in which a horse had had no passage for two or three days, and in less than fifteen minutes after the administration it passed five or six lots of fæces. To say it did not act was to acknowledge to the world that they did not understand it, or had not had the right article.

Mr. GREAVES was pleased to hear what Mr. Hopkin had said, as his experience with physostigmia had not been very successful. It was evident they should prepare it themselves, and use it new, although he had heard of cases in which it had been used with success, months after it had been purchased.

Mr. HENRY E. SPENCER (President of the York Medical Society) then read the following paper on "Animal Parasites," with limelight illustrations:—

ANIMAL PARASITES.

By a parasitic animal, we understand one which inhabits the tissues or appendages of another, and derives its sustenance from the juices elaborated by its host. This definition must be understood as excepting the carnivora, which kill as well as eat their victims, and also embryos and nurslings, which conform to it as thus stated.

Parasitism, however, may be far from complete. The leech sucks the blood of its victims, but in the meantime pursues an independent existence; so do the flea and the mosquito. Some animals are only parasitic during part of their lives; in others, the female is parasitic and the male free. In some species one of the sexes is parasitic on the other. There is a curious family likeness amongst these creatures. The following points apply generally to all:—The digestive system is incomplete; the animal is furnished with suckers or hooklets to attach itself to its prey withal; the locomotive apparatus is rudimentary; and the reproductive organs are prominent and their function performed on an extensive scale. They are generally mean and contemptible-looking objects, and pale of colour. Many parasites convey to a zoological eye the impression of being degraded off-shoots of a higher class than that they now occupy. In all these respects there is a close and suggestive analogy between these creatures and those human beings to which their designation is figuratively applied. As the mammalian whale has got to look very like a fish from pursuit of the same mode of life, so has the high-born hag-fish got to look very like a tapeworm.

(A) PROTOZOA.

The lowest parasites in the animal scale are the *gregarinidæ*.

A gregarina is a simple cylindroid of protoplasm, without alimentary canal or other organs. It varies in size from a "pin's head" to half an inch lengthwise. It has a contractile envelope, but possesses no power of shoot-

ing out pseudopodia like its neighbour the amœba. It inhabits the earthworm and the cockroach, gliding slowly about in their juices. Certain points in its life-history indicate that the gregarina is a degraded member of a somewhat higher family.

It becomes encysted, and the granular contents of the cyst become evolved into little boat-shaped cells, which subsequently escape from the cyst, and become indistinguishable from amœbæ, having like them the power of emitting locomotive and prehensile processes. Subsequently, when the adult type is reached, in some specimens, a crown of soft hook-like processes is noticed, a fact which points in the same direction. You see this in the figure on the left, in which also there appears to be a septum or diaphragm in the middle of the body, but this possibly merely indicates the fusion of two individuals. The next diagram shows it in the embryonic stage; the cyst with its molecular contents; the development of naviculæ; the same free; and the amœboid stage.

(B) Cœlenterata.

This sub-kingdom does not include any parasites proper, so far as I am aware, but many of its members exist in colonies, or are adherent to the shells or appendages of other animals. It is thus not uncommon to see a colony of sea-anemones riding on the back of a crab, and an even more comical sight has been witnessed—a crab clutching an anemone in each claw and carrying it about, the anemone sharing the food of its host and apparently using it as a cab. But in searching for true parasites, we pass on to the

(C) Annuloida,

which include the family, so important parasitically, and so interesting medically, the *Scolecida* or *Vermes*. The characteristics of this sub-kingdom are thus summarised by Nicholson:—"Integument soft and destitute of calcareous matter. Water-vascular system not assisting in locomotion. Nervous system consisting of one or two ganglia, not disposed in a radiating manner. Body of the adult sometimes flattened; sometimes rounded and worm-like." The sub-kingdom contains seven orders, of which five are parasitic—Tæniada (tape-worms), Trematoda (flukes), Acanthocephala (thorn-headed worms), Gordiacea (hair worms), and Nematoda (round worms).

Tape-worms, Tæniada, or *Cestoda*.—There are eight known varieties of this order, of which only two—tænia solium, and T. mediocanellata, are known in this country as human parasites. The following are the characters common to this order:—The head is provided with hooklets, or suckers, and produces by budding a succession of joints, each of which contains both male and female elements. If one of these segments be swallowed by an animal suited for its habitation, an embryo is set free, which bores its way by means of the flinty spines with which it is provided, into some solid part of the new host's body, where it becomes encysted and remains until one of two things happens—either it undergoes calcareous degeneration, or its host being swallowed by another animal, the former cycle is repeated. Generally speaking, the larval condition is passed in the body of a herbivorous, and the adult is that of a carnivorous animal.

I submit illustrations; the diagram shows the "head" of the worm—with profile view of the hooklets and suckers.

Tænia Solium—length 10 to 20 feet. The little head or scolex is furnished with four suckers and a double row of hooklets, and its larval form or cysticercus inhabits the muscles of the pig, causing the so-called Measles of that quadruped. I need hardly remark that it is from eating raw or imperfectly cooked pork that we obtain their well-known tapeworm.

T. MEDIOCANELLATA is both larger and longer, *i.e.*, its segments are more numerous than the last named; and its cysticercus inhabits the flesh of the ox. Here is a picture shewing the heart of a calf thus affected, which was at first erroneously described as suffering from Miliary Tuberculosis.

T. ELLIPTICA, about six inches in length, exists in cat and dog, and has been seen in the human intestine. The cysticercus has not yet been discovered.

T. FLAVOPUNCTATA, about 12 inches in length and having its joints marked by a yellow spot, has once been seen in man. Its larval form is also unknown as yet.

A little worm called TÆNIA NANA has been found in the duodenum in Egypt. Its length is about an inch, and its larva is not known.

T. ECHINOCOCCUS is more interesting. Adult, about a quarter of an inch in length, and consisting of not more than four segments, dwells in the intestine of the dog: but its larval form constitutes the well-known "hydatid" of man. The scolex is provided with suckers and hooklets, and the latter are familiar to most of us from the microscopic examination of the contents of cysts. I need not go into the clinical or pathological aspects of the question, but would note in passing that the great size which these developments attain is unique in the natural history of these larval forms of tapeworm.*

BOTHRIOCEPHALUS LATUS is the largest of the human tapeworms, attaining a length of over 8 yards. The club-shaped head is marked by a deep longitudinal sucker on each side. It is common in Russia, Sweden, and Switzerland, but is unknown in this country. The larva is not cystic, but is furnished with cilia and hooklets. Some authors say that it is free, swimming in water, and so communicated to man; but others say that it inhabits fishes and mollusks.†

B. CORDATUS, which inhabits the natives of Greenland. It is about a foot in length, and derives its names from its heart-shaped head. It also occurs in the intestines of the dog.

Trematoda (Flukes).—These creatures, also known as suctorial worms, are leaf-like in shape, and provided with one or more ventral suckers; they have a mouth and alimentary canal, but no anus. They are mostly hermaphrodite.

DISTOMA HEPATICUM, of which this is a diagram, has been found in the gall bladder and bile-ducts of man, but is better known in sheep, in which it causes the disease known as "Rot." The larva inhabits the slug.

The next picture is a very good representation of a small fluke, known only in Egypt—a country which seems to have preserved reminiscences of one of the ten plagues, as it is a mine of wealth to the helminthologist, and where indeed it seems rather "the thing" to have four or five species of entozoa and a few ectozoa to match in one's body, amongst the Fellaheen. Its length is about $\frac{1}{10}$ inch.

BILHARZIA HÆMATOBIA, leaf-like in embryo, is also met with in Egypt, at the Cape, and in Brazil. In the last-named country it is said that one-third of the whole population harbour it. The female is long and thin, the male short and thick. During copulation the lady is to be found as depicted in this diagram, grasped in the gynæcophoric canal of her spouse, whose marital relations are much more dignified, *e.g.*, than those of the *bonella*, whose males, diminutive and degenerate, do not abhor the womb of their mates, in which, according to Geddes and Van Beneden they take up a permanent abode as parasites.

This interesting creature, nearly an inch in length, occurs in the mesenteric vessels, intestines, kidneys, uterus, and bladder, causing dysentery or hæmaturia, according to its situation.

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* Frequency of hydatids in Iceland. † Uncooked fish.

Acanthocephala, or Thorn-headed Worms, are distinguished by an anterior protrusible proboscis, armed with recurved hooks, for attachment to the intestinal wall of the host. Amongst members of this order are ECHINORYNCHUS GIGAS, the embryo of which inhabits the larva of the cockchafer, and the adult the intestine of the pig, and E. ANGUSTATUS, whose embryo infests the interior of freshwater crustaceans, the adult the intestine of the cyprinoid fishes. Their life-history is similar to that of the tapeworm, including the burrowing and encysting in the tissues of the first host, and the complete sexual development in the second host which has eaten the other.

The *Gordiacea*, or Hair-worms, are parasitic on insects only. They attain considerable length, and in appearance curiously resemble an ordinary horsehair. They lead us to the next class.

Nematoda (Round Worms) are slender, not jointed, and possess mouth, alimentary canal, and anus. The sexes are distinct, and only part of their existence is passed in the parasitic state. The aspect of ASCARIS LUMBRICOIDES is familiar to all. I need only mention that it has three toothed papillæ about its mouth.

OXYURIS VERMICULARIS (Thread Worm) is on the right of this diagram.

TRICHINA SPIRALIS, length $\frac{1}{6}$ inch. Occurs in the human subject in two conditions—encysted and free. In the former state it has a more or less calcified capsule, and is situated between the sarcolemma. In this state it is harmless. In the free state it arises from eating underdone pork, the flesh of the pig being a favourite haunt of the trichina cyst. In the intestine the worm reaches sexual maturity, and the young worms on being set free penetrate into the tissues, causing the severe and often fatal disease—Trichinosis, or Trichiniasis, which has at times been mistaken both for Acute Rheumatism and Typhoid. The symptoms are, as you know, vomiting, diarrhœa, great depression of strength, pains in the limbs, rigidity of muscles, œdema of face and limbs, and general febrile symptoms, high temperature, thirst, quick pulse, etc. If recovery takes place, the worms assume the harmless encysted condition before described.

The GUINEA WORM (Filaria Dracunculus) is a tropical worm, the female of which is supposed to gain access to the tissues by perforating the feet of bathers in muddy tanks, of course in Egypt. One or more may exist at a time, and it may attain the length of six feet. After perforating, it remains for some months, gradually becoming more and more distended with young, and eventually makes its way to the surface, the point of exit being marked by a small blister. The natives extract it by winding it round and round on a stick, a practice in which some of them attain great dexterity, which, indeed, must be required, as the worm is extremely fragile (about $\frac{1}{10}$ inch thick).

TRICOCEPHALUS DISPAR, or Whip-worm, is an inch or two long, and is curious in the different size of its anterior one-third and posterior two-thirds. It inhabits the colon, but it is rarely met with in this country.

A large number of very interesting papers have been written about FILARIA SANGUINIS HOMINIS. The embryo was first discovered by Dr. T. R. Lewis, in India, in the blood, urine, and other liquids of persons suffering from Chyluria and Elephantiasis, probably caused by the mechanical occlusion of their lymphatics by these parasites. One may mention that there is a very good article on this interesting nematode by Dr. Lewis, in "Quain's Dictionary." The larvæ are said to be hatched in the stomach of the mosquito, which sucks them in with the blood of the patients. The length of the adult, according to Bancroft, is from three to four inches.

DOCHMIUS DUODENALIS, *alias* SCLEROSTOMA DUODENALE, is $\frac{1}{3}$ to $\frac{1}{2}$ inch in length. The male is recognisable by a crown of hooks at the caudal

extremity. By the hæmorrhages it excites, this worm causes the so-called Egyptian Chlorosis. It is also known in Brazil and in Italy, and made its first appearance in Switzerland amongst the workmen engaged in constructing the St. Gothard tunnel.

STRONGYLUS GIGAS is very common in the internal organs of many vertebrate animals, and may attain the length of several feet. It is rare in the human subject. The diagram shows one coiled within the kidney of a cat.

FILARIA LENTIS, from $\frac{3}{10}$ to $\frac{6}{10}$ inch in length, has been found in the human eye, and STRONGYLUS BRONCHIALIS, about the same size, in the bronchial glands.

(D) ANNULOSA.

The next diagram shows the nervous and alimentary system of the LEECH. I need not pause to dwell on the anatomy of this well-known creature; you will observe the præ-œsophageal ganglion, and the row of ocelli on the head; the twenty-three pairs of ganglia corresponding to the segments or zonites in one figure; and in the other, the anterior and posterior suckers; the sacculated alimentary canal, each saccule of which is distended with blood in turn till the animal is gorged and falls off, and the respiratory sacs at the sides. The *sanguisisuga medicinalis* has three serrated concentric jaws with which the well-known trilateral puncture is made. Most of the leeches are aquatic in their independent life; some are attached to water-plants and animals; one lives on the gills of crustaceans, another on those of the turbot, and others dwell on damp places on land. They belong to the class *Annelida.*

Many of the *Crustaceans* are parasitic. Specially well-known are the LERNEANS or FISH-LICE, which are good examples of the degenerative character of parasites, the males remaining free copepods, while the parasitic females have suctorial mouths, lancet-shaped mandibles, and atrophied feet. The diagram shows a similar organism (succuling).

The *Arachnida* furnish a very large number of ecto-parasites, of which I give a few illustrations, belonging to the Acarinidæ.

PENTASTOMA TÆNIOIDES inhabits the nose, frontal sinuses, and lungs of dogs, and other vertebrates, and presents a superficial likeness to the tape-worm, hence the term. The larvæ are found encysted in the liver and other organisms of various vertebrated animals, including man, and in them the two pairs of hooks seen in the adult are represented by two pairs of articulated limbs.

The SARCOPTES SCABIEI, of the same order, is familiar to us all. The two anterior limbs are furnished with suckers; the two posterior are similarly provided in the male, as seen in the diagram; in the female the posterior limbs, like the mouth, end in bristles. This creature is almost exactly like the cheesemite. Closely related to it is the harmless DEMODEX FOLLICULORUM, which exists in the sebaceous follicles of the human nose. It is said that few (if any) persons are exempt from it.

Amongst *Insects* ecto-parasites are very numerous, both on man and other animals.

Amongst the aptera are the many varieties of pediculi. The *Pediculidea*, which exist solely on man and in mammals, are furnished with suctorial mouths, and are much less active than the *Nirmidea*, which live only on birds and dogs. When the bird dies, the lice swarm near the beak and seem disquieted, being evidently anxious to change their abode. There are four species which infest man—P. corporis (of which I show a diagram), capitis, pubis, and tabescentium, the last named causing the skin disease Phthiriasis. The young of these loathsome creatures do not pass through a metamorphosis, but are merely small editions of the adult.

The higher aphaniptera pass through the common insect metamorphosis of

larva, pupa, and imago; possess in the last-mentioned stage, rudimentary wings, and have a suctorial mouth. This order comprises the common flea (*pulex irritans*), remarkable for the extraordinary strength of the muscles of its legs, which causes it to jump a distance, which is estimated, as compared with the human standard, to be equivalent to a leap of three miles; a property which, as most of us know, considerably enhances the excitement of the chase in the silent watches of the night. In the American tropics is a much more formidable flea, called the jigger (*pulex penetrans*). The male is free, but the female penetrates under the toe nail, which she uses as a lying-in hospital, becoming, as the diagram shows, a mere appendage to a bag of eggs. Some of the natives are dexterous in extracting them; but my friends Mr. Tippets and Mr. Hood inform me that amputation of the toe is a frequent operation in those latitudes in consequence of this parasite.

The order STREPSIPTERA includes an insect called STYLOPS, generally regarded as a degraded member of the higher coleoptera. It is parasitic on bees, and will be familiar to readers of the "Poet at the Breakfast Table." The female (diagram shows eggs in its inside) only is parasitic, as in the last case; it is a soft, worm-like grub, without feet or wings; the males are winged, free, and of very active habits.

Another insect may be named—the gadfly (œstrus equi), the larva of which is developed in the stomach of the horse. The adult being free. Amongst the

(E) MOLLUSCA,

the same remarks apply as in CŒLENTERATA.

(F) VERTEBRATA.

The only Vertebrate Parasites are certain fishes. The Fierasfer inhabits the sea-cucumber (Holuthurian), and I give an illustration of the Hag-fish, or MYXINA. The spinal column is represented by a notochord, and there is no trace of limbs or mandibles. Attached to the under surface of the rudimentary cranium is a strong recurved serrated fang; and it is also provided with suckers. It is thus able to attach itself to the alimentary canal of a larger fish, and to bore its way into its interior, where it pursues a parasitic existence.

Notwithstanding the fact that parasitic animals greatly outnumber non-parasitic, and that even their species are almost, if not quite, as numerous, the phenomena of Parasitism are usually regarded somehow as exceptions to the order of nature; and Professor Drummond speaks of them as a violation of the law of evolution. So far from this, they afford a powerful illustration of that law, and therefore of the fundamental unity of nature.

In the eloquent words of a great authority—Patrick Geddes—"The conditions of parasitic life are readily seen to differ from those of independent organisms in negative characters, *i.e.*, in the simplification of the factors of their environment. Let us, therefore, briefly consider the results of such simplification upon organisms in general. Let the mechanical conditions be simplified by the cessation of active movement; the specialised body-form necessary for locomotion becomes unnecessary; locomotor muscles and their skeletal attachments are simplified or disappear, organs of sense are far less needed, and nervous adaptations or structures become correspondingly reduced. In all these respects these sessile parasites simply agree with other sessile animals. Again, let us simplify the environment by the deprivation of light, eyes and pigment are useless, and our organism, whether cave-dwelling or crustacean, or internal parasite, become blanched and blind; and similarly with the other senses.

"Or let us subtract, as far as possible, the danger from other animals, by special protection or concealment in one of the nooks of life; here again,

for shelled mollusk, buried amphioxus—or hidden parasite—the diminished need of nervous adaptation is a similar degenerative factor.

"Let food become abundant, the same nervous economy follows. Let it be highly nutritive, and digestive structures and functions may be simplified. Thus the examples of progressive degeneration of the alimentary system, up to its complete replacement by superficial absorption—afforded by various parasitic species—are obvious enough.

"The soft integument, unprotected and blanched, the reduced muscular activities, the simple or absent alimentary tube, the reduced circulatory and respiratory organs, consequent on diminished waste and softened integument, are all intelligible enough; as also is the reproductive activity, demanded by increased risk of failure to find the appropriate conditions.

"The few *adaptive* conditions are readily understood. Given, the continuous adaptation of a flat muscular surface, to resist detachment from the host; and atmospheric pressure helps the development of the sucker. Given, either a clutching limb, or a portion of the body-wall thrust for support into the host—and the mechanical conditions aid the differentiation of the hook.

"Here, if anywhere, function may be said, in fact, to make the organ, and such curious resemblances in form as those between, say, a gregarine, a tapeworm, and an echinorynchus are not hard to explain."

The only other general point I need raise is as to the harm supposed to be done. While there can be no doubt as to the part played by such parasites as trichina, filaria sanguinis, and many others in causing much discomfort, disease, and even death, yet it would seem as if by far the large majority were absolutely innocuous. Wild animals harbour them much more than do tame ones, without apparent decrease of vigour; and in some races of men entozoa abound without exciting attention. Van Beneden goes so far as to suggest that they may even serve some beneficial purpose, by appropriating excessive nourishment or detritus, and speaking of the enormous fleas which exist on the shores of the Mediterranean, he whimsically observes, "If at some future day these insects were to be placed in the rank of surgical species, it would be necessary to resort to those shores in order to procure them; and we might suppose that, by judicious crossing, we might soon produce races that would be of real service; as yet, however, the therapeutic art has had recourse only to leeches."

The main conclusion is, that parasitic animals find conditions when, let us say by accident, they attach themselves to the exterior or interior of others, which make some of their pre-existing structures needless; and these become withered, useless, and ultimately even lost altogether; others require further development of those already existing, such as the locomotive apparatus of fleas; and others, again, the evolution of new ones for attachment and imbibition, such as you have seen depicted in so many of these diagrams. If those unaccustomed to the study of parasites marvel that they should still exist, and that even as a majority in animated nature, I can only say—that all these facts, firstly, usefulness impaired by circumstances or age; secondly, the apparent waste of life involved in the multitude of eggs laid, of which so few can ever reach mature life; thirdly, the exceptional good done, *e.g.*, by the leech as compared with the infinite injury done by the hydatid or the trichina, are, after all, only part of that "riddle of the painful earth," the solution of which has evaded the scientific use of the imagination since protoplasm became the physical basis of mind, and which, notwithstanding all advance in optical instruments, has not yet transcended the apostolic apophthegm, "For now we see through a glass darkly."

Mr. WHITEHEAD exhibited a very large testicle taken from a pig. It had undergone calcareous degeneration.

On the motion of Mr. HANSON, seconded by Mr. BRIGGS, Mr. Anderton, of

Halifax, was elected a member of the association, and on the proposition of Mr. SCRIVEN, Messrs Rickaby, of Guisborough, Mr. Scott, of Harrogate, and Mr. Best, of Thornton-le-Dale, were also elected.

Mr. BRIGGS remarked that if their York meeting was not the success it might have been, it had afforded them the presence of Dr. Spencer, who had just given them such a valuable lecture. (Hear, hear.) It was an embodiment of facts which none of them could for a moment doubt. Referring to the tape-worm of the dog he said he had seen some cases arising from a rough form of the echinococcus. He had noted some marvellous cases of this, and had at home splendid specimens of the stomach of a horse with no less than fifty or sixty bots attached to it, although it had been eight years in spirit. He had seen nematodes (oxyuria curvula) in an elephant. The animal belonged to a travelling showman who came to Halifax. The animal suffered very severely from Colic, and ultimately parted with a large pailful of this particular worm. He proposed a vote of thanks to Dr. Spencer for the very able paper that had been read.

Mr. GREAVES said he had felt great interest in the paper, and he was sure their thanks were due to Dr. Spencer for having come amongst them, and given them such an interesting exhibition of parasites; much of course of what they heard would not apply directly to their profession. As an old practitioner—it was forty-seven years since he was at college—he had to admit that at that time such things as parasites were not talked about. He hoped on some future occasion Dr. Spencer would endeavour to show them the different germs of disease. He believed the time would come when the germs of Cholera and of Glanders, and of the various infectious diseases of human beings and horses, would be, undoubtedly—that was, they would be shown, as they had had those shown them that afternoon, the difference between the germs that produced one disease and the germs that produced another. He believed it would ultimately be done so definitely that there could be no mistake about it. Science was encroaching upon it year by year. He referred to the valuable investigations of M. Pasteur, and believed the subject would be studied until the time would come when disease would be better understood than it was now. He seconded Mr. BRIGGS' proposition.

Mr. GREENHALGH was sorry Dr. Spencer had not touched on one parasite which was of such interest to man. He referred to the parasite of Anthrax. It interested veterinary surgeons more than medical men, although they found it in cases of wool-sorters' disease. He believed the echinococcus was more common in this country than was generally supposed. Three or four years ago he read a paper before that society on the echinococcus. It existed in the liver of a cow which weighed eleven stones, there being only about three pounds of real hepatic substance in the liver. There had been only one other case of echinococcus recorded in England, and that was thirty-four or thirty-five years ago in Cambridge.

Mr. PICKERING spoke of a case in which, on making a *post-mortem* examination of a yearling, he found in the large bowel quantities of Strongylus lumbricoides. Others were similarly affected, and he had them removed from the pasture and treated them successfully with half a pint of linseed oil, two drams of aloes, and oil of turpentine. He had no doubt in the former case death was caused by the parasites.

The vote of thanks was accorded unanimously, and Dr. SPENCER, in returning thanks, said if he had entered upon the discussion of Bacteria and Anthrax they would have been there far into the night. With regard to the echinococcus, the adult form was best known in the dog.

During the afternoon Mr. GREAVES thanked the members of the society for having returned him a member of the Council. The position he occupied in the election was a credit to himself and to them.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

(*Continued from page* 54.)

MR. COE desired to know whether the essayist ever knew of a case of Anthrax in cattle from eating sewage herbage.

Mr. GREAVES said Mr. Carless had thrown out some ideas which might be carried a great deal further than that gentleman suggested, but the paper was one of thorough practical common-sense. It was quite true than when land was over-manured it produced an unwholesome herbage, and if they could only have the sewage conveyed to upper ground a great service would be done to the farmers and also to the general public.

Mr. OLVER observed that the subject was particularly interesting to him from the fact that he lived in a district which suffered as much from the ill-effects of sewage as any in England. The river was quite black, and after floods the adjacent lands were covered with sewage matter. He had been called in to several cases of what he believed to be poisoning from feeding on these grounds. The other day four cows died on one farm, where thirty are kept, from this cause, after a flush of rain, which flooded the fields and turned the grass of which the cows had eaten perfectly black. At the first Congress in London he expressed the opinion that sewage matter was a fruitful source of Tuberculosis, and he still entertained that view. Low-lying farms were particularly affected with this form of disease, and his experience went to show that the nearer one went to Birmingham the worse were the cases of Tuberculosis. Speaking as a member of a corporation most anxious to know how best to dispose of its sewage, he could say they found the matter a most difficult one. The Rochdale system was not in every respect a success; it required much attention and was very expensive, and there was great difficulty in disposing of the solid sewage. In his opinion they would never have a proper system till they adopted some chemical one. It was important they, as veterinary surgeons, should insist that this matter was very deleterious to live stock, and that they should agitate for some better method of sewage disposal, Much of the sewage of Birmingham was allowed to run into the river, without being treated at all, and probably that accounted for its blackness.

Mr. PARKER said he felt convinced at the time that many of the cattle which died during the year of the Plague were really affected with sewage poisoning, and he had seen no reason for altering his opinion.

Mr. STANLEY, as Veterinary Surgeon to the Birmingham Sewage Farm, declared that there had never been any disease amongst the large number of cattle kept on the irrigated land. The effluent was practically pure. In reply to a question by Mr. BLAKEWAY, he stated that the cattle drank from an independent water supply, and fed on the meadows irrigated by the sewage water after it had been treated.

Mr. OLVER: That is a different thing. What I refer to is sewage that has not been treated at all.

The HON. SEC. endorsed the remarks of Mr. Stanley as to the sewage farm, adding that healthier stock did not exist.

Mr. HUNTING thought that they had not at present any proof before the meeting that animals suffered from a definite disease at all. With the object of securing some definite result, he suggested that some animals should be subjected to experiments, simply to demonstrate whether the disease with the symptoms described by Mr. Carless could be produced. It was only to be expected that cattle in the suburbs of a large town should be less healthy than those in the country.

Mr. FAULKENER said it could not tend to help either human beings or animals to drink water containing quantities of organic matter or to drink even treated water.

Mr. BRIGGS gave cases of the disease described from his district, but said they had been attributed to the pollution of the river from dye works rather than to sewage matter.

Mr. TAYLOR deemed it the duty of the profession to point out to the public the grave danger which might arise from importing into a district large quantities of untreated sewage. He could bear testimony to the bad results produced in a dry summer from cattle drinking at a stream which received the entire sewage of a large institution. Mr. Carless was to be complimented not only upon the able manner in which he had introduced the discussion, but also on the courage he had exhibited in attacking one of the greatest evils of the present day.

The PRESIDENT coincided with the views generally expressed, and observed that, in a populous district where sewage was turned into the streams, one could hardly fail to come across cases such as those alluded to by Mr. Carless. In several instances he had known colts to waste away and die from the affection described, and he had never any hesitation as to the cause of death. He never saw Anthrax follow from sewage poisoning, but he could point to a farm where Tuberculosis existed in almost every animal that was killed, even the fowls being said by the farmer to be graped. A sewage tank capable of holding thousands of gallons on the farm had a pernicious effect upon everything, and he was inclined to think Anthrax might follow under such circumstances. He fully agreed that the chemical solution was the only true solution of the sewage difficulty, but he was inclined to think that these cases would not be so frequent if the sewage was ntilised on the high land. The healthy condition of the Birmingham Corporation stock was probably due to the proper treatment of the sewage. Notwithstanding what Mr. Hunting said, he was bound to express the opinion that these cases were brought home.

At the close of the discussion, Mr. Carless was cordially thanked for his interesting paper, on the motion of the PRESIDENT, seconded by Mr. GREAVES.

A similar compliment was paid to the President, on the proposition of Mr. OLVER, seconded by Mr. HODGKINSON.

The members subsequently dined together.

The next quarterly meeting will be held at Derby.

HERTFORDSHIRE VETERINARY MEDICAL ASSOCIATION.

A NUMBER of members of the Royal College having expressed a desire to form a veterinary medical society for Hertfordshire and the adjoining counties, Mr. Kendall, Hitchin, sent a number of circulars to members, calling a meeting, which was duly held at the Sun Hotel, Hitchin, on June 22nd. There were present Messrs. W. Wilson, Leggett, Crofts, Kendall, Halliday, Mulvey, Wragg, Banham, Hunting, and MacGregor. Numerous letters of apology and good wishes were received from Sir F. Fitzwygram, Sir H. Simpson, Dr. Fleming, T. Briggs, T. Greaves, Professor Brown, T. Simpson, Professor Axe, Revell, Mills, Hewson, Lewis, etc. Mr. Banham took the chair, and in his remarks, said: "I promised Mr. Kendall that I should give him every support I could in the formation of a local veterinary medical society. I redeem my promise, believing that nothing is more beneficial to the profession than the meeting of members. It is a great mistake to narrow down our usefulness to mere individual action. We may be the most successful practitioners, and of great scientific merit and social position in the district in which we practise, and yet fall short of a higher standard so easily to be obtained by combined action. Of late years the profession has made

great progress in the eyes of the public. The State has acknowledged us in the prevention of contagious diseases of animals, also the farmer in the management of stock, and has sought our advice on the subject of hereditary diseases. I have often thought some original research might be undertaken by the profession. We have masters in the profession in every special branch, and not a few capable of scientific inquiry. What is wanted is opportunity and money, and why not the various associations subscribe and appoint workers, which result would be gratifying and would repay us. But this is not the only benefit we receive from the associations; they are invaluable to us as practitioners and workers. They dispel petty spite and prejudices by bringing us into contact with each other; ideas are exchanged, and we keep up with the progress of science. Isolation narrows our minds, and these societies stimulate a healthy state of the profession, and enable us to act with energy and precision. Other subjects I need not mention, but you will appreciate the value of societies in interesting ourselves in veterinary politics and ethics, and I beg to propose that a veterinary medical society be formed." This was seconded by Mr. Kendall, who mentioned over ninety members who resided in Bedfordshire, Cambridge, Essex, and Hertfordshire. The proposition was carried. It was decided that the society should be called the Hertfordshire Veterinary Medical Association. Rules were drawn up, and Mr. Wilson, Berkhampstead, was elected President; Messrs. Leggett, Croft, Harrison, Vice-Presidents; F. W. Kendall, Hon. Secretary. The next meeting will be held at Hatfield the second week in October.

F. W. KENDALL, *Hon. Secretary.*

LINCOLNSHIRE VETERINARY MEDICAL ASSOCIATION.

MEETING at the Albion Hotel, Lincoln, June 28th, 1888. Present—Charles Hartley, Esq., President, in the chair; Messrs. W. H. Brooks, Fulbeck; W. B. Dickinson, Boston; B. Freer, Uppingham (Vice-President); F. L. Gooch, Stamford (Hon. Sec.); J. W. Gresswell, Peterboro; G. Osborn, Fulstow; Captain B. H. Russell, Grantham; Messrs. J. Smith, Huntingdon; T. Smith, Market Rasen; F. Spencer, Wragly; F. W. Wragg, London; T. Greaves, Manchester; G. A. Banham, Cambridge; T. A. Rudkin, Grantham; and Thelin, Manchester (Visitor).

Mr. T. A. Rudkin was elected a member. Letters of apology for absence were read from Professors Axe, Williams, Pritchard, Dr. Fleming, Messrs. Howse, Clark, etc.

The PRESIDENT delivered his inaugural address, in which he said: I sincerely thank you for the honour you have conferred upon me by my election to the office of president of this society. I can assure you I fully appreciate your kindness in paying me this, the highest compliment in your power, and I shall do my best to prove that your confidence is not misplaced. You will readily understand the feeling of diffidence which I felt as to accepting office in succession to our valued Ex-President, Mr. Greaves, whose energy and devotion to our profession are only equalled by his courtesy and amiability of character. His interest in our comparatively young association is unfailing, and furnishes an example to us all. It is my impression that associations such as this, like matters commercial and political, vary considerably, having times of depression or prosperity; times when there are general activity and interest; others when we have only small attendances at meetings, and when the benefit to be derived from our papers and discussions do not appear to be appreciated. The latter I fear you will agree with me has been our condition for some time, and I would urge upon you, gentlemen, the necessity of improving this condition of affairs by every means in our power. We may endeavour to increase our numbers by bringing before you any professional brethren who may not

already be members the many advantages that accrue from the realization of our motto, "Unity is strength." We may aid our Secretary by preparing papers which will increase our store of knowledge and furnish ground for friendly interchange of ideas; and we may endeavour to attend all our meetings, and so assist each other. Much useful information must have been acquired by those members who have attended regularly, not only from the thoughtful, scientific, and practical papers on various subjects which have been read, but from the discussions which they have led up to, and personally I may say that I have materially benefited by them. I do not propose to trespass long upon your time, knowing that the paper awaiting your consideration from the pen of Mr. Smith will be much more worthy of your attention, but I should like to mention two or three matters of interest to us all. First, I must express the feeling of disappointment which you will, I am sure, share with me as to the non-election of our nominee Captain Russell to a seat on the Council. We have had ample experience of his sterling worth and fitness for office as our representative, and I am confident it is by the election of such men that the interests of provincial veterinary surgeons will be best promoted. At the same time I desire to congratulate Mr. Greaves on his re-election; he is a man we could ill spare. On the subject of the proposed Horse Tax you will feel with me that we are entitled to exemption for all animals used for our professional work. Every effort must be made to gain this, and we must be prepared to join any movement that may be made in this direction. With reference to the question of Students *v.* Examiners, which caused such a commotion some time ago, I regret that such an event should have occurred. The details are only too well known to you. We must be most careful to do our utmost to guard against any injustice being done to students (and examinations at the best are but an approximate test of a man's knowledge), but at any cost we must maintain the dignity and integrity of our diploma-granting body, the Royal College of Veterinary Surgeons. You will have noticed in the daily paper of a recent date a letter from an army veterinary surgeon describing an operation for the relief of "roaring" suggested by Dr. Fleming. This, if successful, would be a magnificent thing for our profession, but from my experience of somewhat similar cases, the healing process obliterates the good that is apparent immediately after the operation, and I am afraid that until the cause of the disease is perfectly clear to us, the remedy will be undiscoverable. I will close by expressing my sincere sorrow for the death of my old preceptor, Professor Robertson. I was intimately acquainted with him, and gladly take the opportunity of acknowledging the many kindnesses I have received from him. I remained at the College doing clinical work with him the whole of one long vacation, and know what a kind, earnest man he was. I can never forget the opportunities he gave me of improving myself. His sad and sudden death must have been a painful shock to all who had known him, and an almost irreparable loss to the profession.

Mr. GRESSWELL urged with regard to the horse-tax, that veterinary surgeons ought to be exempt as well as medical practitioners. He proposed, "That the Secretary write to the Chancellor of the Exchequer claiming exemption."

Mr. GREAVES seconded.

Mr. GOOCH said, "that the Chancellor of the Exchequer had received a deputation on the subject, and had promised to give the matter his best consideration."

Mr. BANHAM "thought that combined action should be taken, with the other societies, through the Council of the Royal College of Veterinary Surgeons. The Chancellor of the Exchequer would pay more regard to a

memorial signed by 200 or 300 individuals than to one signed by a few." He proposed, as an amendment, "That the Secretary write to other societies, in order to ascertain their views on the subject."

Mr. GREAVES said, "that the Council of the Royal College of Veterinary Surgeons had taken action so far as they were concerned, and he thought nothing would be lost by the different associations acting on their own responsibility."

The motion having been negatived, it was resolved, on the proposition of Mr. Greaves, seconded by Mr. Brooks, "That in the opinion of this meeting veterinary surgeons should not be subject to the horse-tax, but should be placed on the same footing as medical men with reference thereto." Also, "That the Hon. Secretary write to Lieut.-General Sir Frederick Fitzwygram asking his advice on the matter, and that the President and Secretary be empowered to take such steps as they may think fit, in order to obtain exemption from the tax."

Mr. J. SMITH, M.R.C.V.S., Huntingdon, read the following paper on

"COLIC IN HORSES."

MR. PRESIDENT AND GENTLEMEN,—Knowing that I should be unable to introduce to your notice anything of novel importance, I have selected this subject for my paper with the hope that whatever it may lack in interest, may be atoned for by a good discussion, from which we may all derive some information that may be of use to us in our every-day practice. I do not propose to occupy your time with a definition or with a list of the symptoms of the disorder, with which you are all familiar, but to confine myself more to its causes, prevention, and treatment. All horses intrusted to our care are more or less liable to Colic, but we find that cases are rare in proportion to the care bestowed upon their treatment in regard to their work and diet. And this is the reason why the heavier breeds are more liable to this affection. They are generally supplied with a large quantity of food, frequently of inferior quality, which is often given to the horse when he is exhausted with prolonged labour. A horse is worked for several hours at a time, and when brought home has his manger filled with bulky and indigestible food. This he often eats ravenously, and the imperfectly masticated food is passed into the stomach and intestines whose vital energy has been so much impaired that instead of being digested and prepared for assimilation it acts as an irritant, and also, by undergoing chemical changes, generates gases which distend the stomach and bowels, and we get a case of spasmodic or tympanitic Colic, or more probably a combination of the two. We are aware that a large quantity of even good food given to healthy horses will sometimes cause disturbance, and how much more likely will such be the case in the instance I have quoted. In addition to this very frequent cause of Colic, we have the system of occasionally giving cooked food to horses, and that again in large quantities at a time. We know that amongst a number of horses there are generally some which are greedy feeders, horses which bolt their food, and we find that these, when fed upon cooked food, are very prone to Colic. In fact, we should be surprised if they were not, when we know that in these cases the starchy constituents of the food are passed directly into the stomach without being acted upon by the saliva, and arrive there in the best possible condition to undergo fermentation. Again, how often in large towns do we get cases of Colic on a Sunday morning? On that day the horses are resting, and of course must have a bran mash. And what a bran mash it is as a rule! Sufficient for at least three or four horses. The horse eats greedily of his changed diet, and Colic is a result. I would not for a moment lead you to understand that I object to mashes as an alternative, but what I do object to is the quantity in which they are given.

Another error in dieting is very common. A horse has done a harder day's work than usual, and for this reason must have more food. But this is not given as an extra feed. The ordinary feed is doubled in quantity, and very often given to a tired horse at a time when of all others food should be withheld. Again, a sufficient supply of pure water is necessary for the maintenance of good health, if frequently and regularly given. But how often do we see horses come in from a hard day's work nearly exhausted and perspiring freely, and allowed to drink their fill of cold water! That this is a fruitful cause of Colic I have no doubt, and I believe that horses in large towns which have access to public troughs are largely saved from Colic from this cause, by being allowed to drink frequently, when the horse himself becomes a good judge of the quantity he requires. At this season of the year we meet with several cases of Colic as the result of allowing horses an excess of green food, which from its succulent nature is especially liable to undergo fermentation. It is by appreciating the causes of the disorder that we are led to be able to give advice for its prevention, and to this part of my subject I wish to devote a few words, as I am of opinion that in no class of diseases have we the causes more under our control than in stomach and bowel affections. Prevention of Colic will be largely obtained by avoidance of errors in dieting, to some of which I have referred. I would recommend that those who have charge of our horses, especially our agricultural horses, be taught that the stomach of a horse is not like the rumen of a cow, a mere receptable for food, but an essential organ of digestion of but limited capacity, which does not need to be crammed in order to perform its proper functions, and that it cannot be so treated without danger to the animal; that the teeth of a horse are provided for the purpose of masticating the food, and that food which does not require mastication should be sparingly, if ever, used. I would further recommend that no horse be put to work immediately after a full meal, and where a horse has done a heavy day's work, he should be allowed to stand in the stable until he is cool and comfortable before being fed. A little chilled water may be given, and if a little good hay be put into the rack, it will occupy his attention and besides requiring proper mastication, will further have the effect of slightly stimulating the stomach to secretion and prepare it for the reception of the feed which is to follow. Should a horse require more food than usual to supply the extra waste of tissues caused by hard work, let him have it by all means, but let it be in excess in its albumenoid or nutritious constituents, and let him be fed oftener, and not in increased quantities at a time. Again, the more prominent ideas which strike me in connection with the prevention of Colic. In the treatment of Colic I am in the habit of making a secondary consideration of the old adage, *causa sublata tollitur effectus.* Our first and chief endeavour must be to relieve the pain. This once accomplished, we are on the high road to a successful termination. Many and varied are the drugs in our hands for securing this object, but in my own experience I have found nothing to equal the subcutaneous injection of morphia. I know that by some this remedy has been condemned, but I attribute this largely to want of judgment in using it, especially as to the quantity given and the repetition of the dose. It is so easily administered and its action is so rapid that I consider its discovery to be one of the greatest boons ever conferred upon veterinary surgeons. Many times have I seen a horse suffering acutely, and, after he has had one or more of the ordinary colic drinks poured down his throat, relieved in a few minutes by its use. In large and repeated doses it is sure to cause delirium, but in doses of 40 minims it will be found to possess all the advantages I claim for it. Should the morphia fail to relieve the pain, I should not repeat the dose under four or five hours, but should resort to some other remedy, and next to this I am inclined to rank chloral hydrate. By using this drug we get all

the good effects of opium without any deleterious results. In doses of from 2 drams to ½ oz., I consider it a splendid remedy. Opium has been largely used for years in the treatment of abdominal pain, but for my own part I seldom use it in cases of Colic, as it is liable to interfere with the action of the bowels, and if freely used will cause delirium, besides leaving the horse very seedy after the pain has left him. Belladonna, given in the form of the extract, is a very good anti-spasmodic, and I frequently use it both in this form and as the subcutaneous injection of atropia. When given as a drench it may with advantage be mixed with about 2 ozs. of chloric or sulphuric ether, the latter being good stimulants as well as anti-spasmodics. The extract of belladonna may also be used with benefit, if given as an enema, with a little warm water. When exhibited thus it has the effect of lessening the contraction of the muscular coats of the bowels, and so allowing the expulsion of fœces and flatus. Of aconite as an anodyne I have had little experience; but what I have had has led me to look upon it as a dangerous remedy, especially in cases of tympanitic Colic when given with an alkali. In chlorodyne we have a combination of excellent medicines, and one dose of this is generally sufficient to relieve an ordinary case of Colic. Indian hemp is a drug I am not familiar with, but if it possess the properties claimed for it, I hope it will soon be in the hands of all of us. In cases of flatulent Colic, especially in cart-horses, I have found the oil of turpentine given in linseed-oil an excellent draught. In protracted cases this may be repeated with an admixture of a solution of ammonia or carbonate of ammonia. There is a great diversity of opinion as to the advisability of giving aloes in these cases. For my own part, whenever practicable I give a ball containing five or six drams of aloes, as soon as possible, but under no condition do I repeat the dose, as I have found that if you are master of the pain, the action of the bowels is only a matter of time. As for surgical interference in these cases, in tympanitic Colic, where there is great distress in breathing and oppressed heart's action, as evidenced by dusky mucous membranes, etc., I very strongly recommend benesection. In two urgent cases of flatulent Colic I have punctured the intestines through the abdominal walls with good results, in another case the horse died, but he was *in extremis* when I operated. Were we to go further than this and the case died, I think the next time the owner required the services of a veterinary surgeon he would go elsewhere. Exploration per rectum I believe to be of great service in assisting us to diagnose the cause which is producing the pain, and always have recourse to it. If constipation exists frequent enemata of warm water may be given, and this may be varied in obstinate cases with linseed-oil. Of ætherisation per rectum I have had no experience, but hope some of the gentlemen present have, as it seems to me that it should prove a valuable agent in reducing the contraction of the bowels. In all severe cases of abdominal pain much good may be obtained by the continued application of hot rags to the abdomen, and this is a measure I never neglect. As for the general surroundings of the patient, I like to see the animal at once placed in a roomy loose-box, and unless he be very violent, although I may be wrong, I allow him to get up and lie down as he pleases. In the opinion of some this may be courting the serious complication of twisted bowel, but it is my opinion that twists from this cause are extremely rare, but arise generally from muscular contraction, especially when the bowels are tympanitic. It has been a common error to suppose that in many of the more severe cases of Colic we have had to deal with inflammation of the bowels, whereas I believe that not in one case in a thousand do we get this as a sequence to pure Colic, Enteritis being a rare and extremely fatal disease. I will now conclude my remarks by renewing the hope expressed in the early part of my paper, that a good discussion may follow.

A long and practical discussion followed, in which the President, Captain Russell, Messrs. Wragg, Greaves, Banham, Gooch, Dickinson, Freer, Gresswell, and others took part.

On the motion of Mr. Gooch, seconded by Mr. Wragg, a hearty vote of anks was passed to Mr. Smith for the paper.

In the course of the discussion, Captain Russell took the opportunity of returning his thanks to those members who gave him their vote towards obtaining a seat on the Council. Whether his reasons for thinking why he was not elected were right or not it was impossible to say, but he had a grave suspicion that the pledge entered into by this Association with others a few years ago had not been acted up to as it should have been.

The PRESIDENT said with regard to their next place of meeting, he had a half-promise from Professor Axe that he would come amongst them. It was therefore desirable that they should meet at some place on the main line, and he had pleasure in proposing that their next meeting be at Huntingdon. This was agreed to.

Mr. GOOCH exhibited two calves that were in the uterus of the cow at least a year and eleven months.

The PRESIDENT showed an ingenious portable firing-iron.

Mr. GREAVES proposed a vote of thanks to the President for the able address he had given them, and for the admirable manner in which he had conducted that meeting. He hoped the members would rally round him and give him all the support they could during his year of office.

Captain RUSSELL had great pleasure in seconding the proposition. He was pleased indeed to see Mr. Hartley in the position of Chairman of the Association; he had known him for some time, and he was sure he would make a very useful President.

Mr. GOOCH supported the motion, and invited members who desired to read a paper at the next meeting to give him due notice.

The motion was carried by acclamation.

The PRESIDENT returned his sincere thanks for the compliment which had been paid him.

The members afterwards dined together.

ROYAL AGRICULTURAL SOCIETY.

AT the monthly meeting, held on June 27th, Sir JOHN THOROLD (chairman) stated that Professor Brown had presented the following report:—

PLEURO-PNEUMONIA.—The last report presented to the Committee was up to May 26th. Since that date the following outbreaks of this disease have been reported—viz., twenty-four in England and sixteen in Scotland. Sixty-one diseased and 262 healthy cattle have been slaughtered in England, and thirty-seven diseased and ninety-eight healthy in Scotland. The Slaughter Order is now being carried into effect throughout Great Britain and Ireland.

SWINE FEVER.—In the three weeks ended June 16th there were 572 outbreaks reported, and 2,961 swine attacked with this disease. Of these, 1,452 were slaughtered, 1,217 died, and 129 recovered; the remaining swine were left alive by the local authorities.

ANTHRAX.—Seven outbreaks of this disease have been reported and nine animals have died.

The Committee recommended that Mr. Frank H. Gibbings be appointed Provincial Veterinary Surgeon for the county of Nottingham, in the room of Mr. Charles Gresswell resigned. A letter had been received from the Clerk of the Farriers' Company announcing that at a meeting of the Court, held on the 25th instant, it was unanimously agreed to present the Freedom of the Company, free of cost, to the two persons whom the Council should notify to

the Company were the first-prize takers at the competition of shoeing smiths to be held at Nottingham next month. The Committee recommended that this offer be accepted, and that the thanks of the Council be conveyed to the Farriers' Company for their action in the matter. In response to the invitation of the Council, the President of the Royal College of Veterinary Surgeons had consented to serve on the Veterinary Committee of the Society.

Professor BROWN reminded the Council that at a recent meeting, when the subject of inoculation, particularly in connection with Swine Fever and Black-leg was discussed, Earl Spencer had urged that something should be done by way of application to the Home Office to carry on experiments in regard to Swine Fever. He (Professor Brown) had promised to make an application at once, and accordingly had a letter prepared, stating that a strong feeling had been expressed by this Society in regard to continuing these experiments, and asking whether the Home Secretary was of opinion that licences could be granted to certain veterinary surgeons selected by him without the necessity of the filling up of and obtaining signatures to the usual forms, which would be absolutely fatal to the conduct of the experiments. In reply to that letter his Department had received the following communication from the Home Office:—

Whitehall, June 19th, 1888.

SIR,—I am directed by the Secretary of State to acknowledge the receipt of your letter of the 12th inst., intimating that a strong desire has been expressed by the Council of the Royal Agricultural Society of England that a certain number of veterinary surgeons selected by the professional officer attached to the Agricultural Department of the Privy Council Office should receive licences under the Act 39 and 40 Vict. cap. 77, empowering them to inoculate living animals with the virus of Swine Fever for the purpose of protecting the animals from that disease, and inquiring whether, in the opinion of Mr. Secretary Matthews, it would be possible to grant licences forthwith to these professional men without the trouble and delay which are incurred in filling up and obtaining signatures to the usual forms; and, in reply, I am to acquaint you, for the information of the Lords of the Council, that the proposed inoculation to be made for the protection of the particular animals inoculated would not be such experiments as the statute forbids to be performed without a licence.—I am, etc., (Signed) E. LEIGH PEMBERTON.

The Clerk of the Council, Agricultural Department,
Privy Council Office.

He understood the letter to mean that inoculation performed for the purpose of protecting the animal was not an experiment within the meaning of the Act. The Home Secretary had said that that was his opinion on the matter, but he (Professor Brown) would point out that only the opinion of the judge who might try a case would be valid as a legal interpretation of the Act. He could not get rid of the fact that the word "experiment" stood in the Act of 1876 without any attempt at definition.

Colonel KINGSCOTE remarked that they did not seem to have got any further than when they went to the Lord President some months ago.

Mr. DENT said, as he had before stated, the right way was for Professor Brown or some one appointed by him, to perform these operations, and that if nobody else would take the risk of fighting the battle, the Society should do so. What was the object of their existence as the Council of the Royal Agricultural Society? It was to try to find out anything that would be of advantage to the agricultural interests of this country. In the event of a prosecution, he would be quite willing to move that a grant be made towards the expenses of fighting the battle.

The subject then dropped.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

FELLOWSHIP.

THE following gentlemen, having passed the prescribed examination, were admitted Fellows on July 13th:—

Mr. J. H. Steel	Army Veterinary Department.
„ J. B. Gresswell	Louth.
„ C. J. Humphrey	London.
„ F. P. Carter	Bradford.
„ J. Leather	Liverpool.
„ T. H. Slocock	Hounslow.
„ R. J. Hickes	Market Weighton.
„ J. Cooke	Scarborough.
„ W. Peddie	Glasgow.

MEMBERSHIP.

At a meeting of the Court of Examiners, held in London on and between June 26th and 28th, 1888, the following from the Royal Veterinary College passed their Oral and Practical Examinations, and were admitted members of the profession:—

Mr. F. W. Melhuish	Exeter.
„ J. M. Tebbot	Kettering
„ R. C. Tennant	Bedford.
„ J. E. Taylor	Derby.
„ T. McGuinness	Dublin.
„ G. D. Lausley	London.
„ J. R. Welsby	West Derby.
„ F. O. L. Walpole	Bury St. Edmunds.
„ C. E. Doyle	London.
„ C. N. Parsons	W. Dulwich.
„ D. B. Miller	Virginia, U.S.A.
„ J. Sherley	Twickenham.
„ W. W. Norwood	Doncaster.
„ F. W. Willett.	Staines.

The following students passed their Second Examination:—

Mr. F. W. Wildgoose.	*Mr. G. Bishop.
„ G. D. Tinkler.	„ E. C. Storey.
„ A. S. Trydell.	„ J. E. Abbott.
„ C. Nesling.	„ R. Halpin.
„ J. N. Booth.	„ W. A. Welch.
„ G. T. Cannon.	„ C. H. Williams.

The following students passed their First Examination:—

Mr. J. B. Tutt.	Mr. M. A. Hutchence.
„ H. A. Pattison.	† „ J. Row.
„ A. Brown.	* „ F. M. Hill.
„ S. Bennett.	„ H. Garry.
„ E. H. Simmons.	„ G. A. Bushman.
„ F. E. H. Baldrey.	„ F. H. R. Bunbury.
„ H. Sharpen.	„ A. Smith.
„ R. Forshaw.	„ F. F. Spencer.
„ L. H. O. Johnes.	„ F. Gregory.
* „ F. L. Somerset.	„ F. E. Place.
„ E. W. Borett.	„ W. H. Williamson.

Mr. D. G. Davies.
„ E. Morgan.
„ C Harwood.
„ J. E. Shacklock.
*Mr. C. H. Coody.
„ W. F. Howes.
„ P. C. Woolston.
* „ D. Pugh.
Mr. A. Wall.

Marked thus * passed Great Credit.
Marked thus † passed Very Great Credit.

ARTHUR W. HILL, *Secretary.*

Army Veterinary Department.

Gazette, June 26th.

Veterinary Surgeon J. W. A. Morgan, to be Veterinary Surgeon First Class.

Gazette, July 10th.

Veterinary Surgeon W. D. Gunn, to be retired from the service, receiving a gratuity. Dated 13th July.

Gazette, July 17th.

The following gentlemen to be veterinary surgeons on probation :—F. B. Drage, vice H. A. Fallam, deceased ; J. H. Jackson, vice W. D. Gunn, retired.

J. H. Steel has arrived in England from India on six months' sick leave.

Obituary.

The following deaths have been reported :—F. Watkins, M.R.C.V.S., Mareham-le-fen, a graduate of 1868 ; and H. J. Hunt, M.R.C.V.S., Newbury, who graduated in 1880.

Notes and News.

DOGS IN CHINA.—They have a very efficient way in North China of preventing dogs from becoming too numerous. They strangle them, eat the carcass, and sell the skin. No knife is used in the work of destruction, for that would injure the fur. The exportation of dog skins is an important item in Chinese commerce.

GLANDERS IN THE UNITED STATES.—Glanders appears to be very prevalent in some parts of the United States. In Illinois many horses have had to be destroyed, and at Tuscola a man contracted the disease. In Kansas City, a man has died from Glanders. He was in the habit of doctoring glandered horses, and in doing so blew salts from his mouth into the animals' nostrils.

ROYAL VETERINARY COLLEGE.—The friends of Professor McQueen, late of the Glasgow Veterinary College, will be gratified to hear that he has been appointed teacher in the Royal Veterinary College, London, where no doubt his zeal, ability, assiduity, and courteousness will soon establish for him a favourable position among his colleagues and the students.

M. PASTEUR AND THE AUSTRALIAN RABBITS.—A correspondent sends us the following extract from a letter received from New Zealand :—Popular prejudice is said to be against M. Pasteur's microbe theory ; it may not be generally known how much popular superstition has lately done for him out here. When this anagram—

Pasteur's vast breed of microbes
Removes a cursed pest of rabbits—

was discovered by a well-known citizen of Christchurch, New Zealand, and

published by him in the *Weekly Press*, many of the farmers recognised in it the finger of Providence, and believed a sign had been vouchsafed to them.

UNIQUE CASE OF EARLY LACTATION.—On the 19th May last the Clydesdale mare, "Moss Rose," the property of John Gilmour, Montrave, gave birth to a well-grown, good-conditioned filly foal, which was at once noticed to have mammary glands, each the size of an ostrich egg, and to have perfectly-formed teats, which were easily grasped, and when drawn gave milk in abundance. The glands were emptied, and astringents applied to stop the secretion as soon as possible, which treatment was quite successful in ten days. Unfortunately, the foal afterwards took "Joint-ill," and though everything was tried to cure it, it died when twenty days old. It would be interesting to know if this condition has been often noticed, and also if any reasons can be given for it.

Correspondence.

TUSON'S DISINFECTANTS.

SIR,—In the June number of your Journal, Mr. W. Alston Edgar, F.R.C.V.S., refers at pages 416 and 417 in very complimentary terms to my disinfectant preparation of chloride of zinc and sulphurous acid, under the name of "Sporokton," as a reliable agent in the treatment of skin diseases.

Kindly allow me to point out, however, that I have long since abandoned the title "Sporokton," and that my various preparations—liquid and powder—are now called "Professor Tuson's Disinfectants." The agent referred to by Mr. Edgar is No. 1 Liquid. By publishing this correction in your next issue you will much oblige RICHARD V. TUSON.

Tuson's Disinfectant Company, New Charlton, Kent.

P.S.—Having received from many parts of the country applications for information as to the methods of using the disinfectant for skin affections, I wrote to Mr. Edgar, who kindly replied as follows:—

"Camden House, Dartford.

"DEAR PROFESSOR TUSON,—I have much pleasure in supplying the information you require. Had my paper been strictly upon Eczema and its treatment, I should have entered much more fully on the subject.

"*In Eczema.*—Commence with a solution of the No. 1 Liquid Disinfectant—one part to thirty of water, increasing strength to one to twenty after a few days' application. Apply night and morning.

"*In Grease.*—One part to twenty-four of water for first few days, increasing strength of solution to one to twelve, three times a day. After a few applications the disgusting stench of the disease is entirely removed.

"I have never found it necessary to take precautions, excepting occasionally. With dogs it is advisable to lead them about on a chain for a few minutes after application.

"In severe cases of Grease I think this agent may be safely used up to a strength of one to six of water, applied with care. I am confident it will prove to be one of the most efficacious remedies ever tried for this troublesome malady.

"We also use the fluid largely at its full strength for preserving fresh specimens during dissection and also for drying; it answers better than any other agent. I think subjects may be kept from decomposition for almost any length of time, if properly sprayed over.—I am, yours faithfully,

"WM. ALSTON EDGAR, F.R.C.V.S."

HIGHLAND AND AGRICULTURAL SOCIETY AND THE PLEURO-PNEUMONIA INQUIRY.

SIR,—Without one word of comment on the above article, which appeared in the last Journal, I may be allowed to state the following facts. In August, 1886, an outbreak of Pleuro-pneumonia occurred at farm A. After slaughtering a number of animals, including the bull, the stock was inoculated. No more deaths from Pleuro-pneumonia. In May, 1887, an outbreak of Pleuro-pneumonia occurred at the farm B, where the cattle were housed for examination. The frequent coughing among the stock was rather noticeable; supposed cause Tuberculosis. After a number of animals had been slaughtered the whole herd was stamped out. The *post-mortem* examinations showed six recovered cases of Pleuro-pneumonia, which accounted for the coughing. A bull had been bought on to the farm six months previous to the outbreak—the only animal brought to the farm for years. This animal, when killed, was perfectly healthy.

Previous to August, 1886, a heifer from farm B was sent to the bull at farm A. So far as known, the bull was then perfectly healthy; the heifer did not prove in calf and was killed. This heifer, no doubt, brought the disease to the stock on farm B. What use could inoculation be after an outbreak had occurred in a stock? Might not compulsory examination of all cattle dying on a farm, and less compensation when found infected, be a means of preventing the spread of this costly disease?

Turriff. P. BEATTIE, M.R.C.V.S.

POPULAR VETERINARY LITERATURE.

DEAR SIR,—Kindly give insertion to the following remarks in regard to the advertisement in your Journal of May, in which the proprietor of the *Farming World* offers a prize of £30 for the best treatise on "The Ailments of Horses, Cattle," etc.

I think it would be very much out of place for any veterinary surgeon to offer his services in compiling a paper on the above subject for the paltry sum of £30—or, in fact, any sum.

No man who has the interest of his profession at heart would offer to undertake such a work as the one advertised for by the proprietor of the *Farming World*. I would consider the veterinary surgeon who writes for any such prize as the above or similar, is no gentleman of professional standing, and is unworthy of recognition. Who is he that would sit down and attempt to write an excellent treatise for £30 to be issued in a penny weekly? I would say his practice is of little account and his principles would be of less. Surely the education we got at college and the amount picked up in practice is worth more, and I would say it is worth more to the profession, and the public have no right to the knowledge required by the veterinary surgeon; therefore it would be unjust to the profession in general for any man to write a treatise on the above.

I think every gentleman should discard the offer given. There are far too many books and pamphlets and veterinary works issued, and as many quacks to thirst after them, without encouraging more. It would be better if there were fewer articles issued on veterinary surgery, and for the practitioner in general.

At present the *Farming World* gives answers to correspondents for treating their animals, which are only a downright nuisance.

The other day I was called out to see a cow suffering from acute Pneumonia. My first visit was at night, and you can imagine her condition from her temperature, 105·2°; next morning 103·1°. At first I told my client to give her nothing but what I ordered. On my third visit I was told she took a

shivering fit (which was due in this case to doors being left open), and that she had had no passage yet. Of course we all know there is a certain degree of constipation present, and for this they had given the cow lbjss of Sulph Magnes. I condemned this treatment, and as an excuse I was told they read it in the *Farming World* for constipation (only, I believe).

Now, is it not high time work of this sort was terminated?—penny papers playing into the hands of a lot of blockheads and injuring the practitioner. If the editor of the *Farming World* and his fireside surgeon would recommend their correspondents and the public to walk up to the orders given by their veterinary surgeon in each particular case, they would be conferring a benefit on the public as well as the veterinary surgeon. But no; that does not seem to be the motive. All is tainted with detestable presumption and empiricism.

In conclusion, it is to be hoped that no professional gentleman of any standing, nor any man connected with the profession, will assist in the compiling of such an essay. M.R.C.V.S.

THE VETERINARY SURGEONS ACT OF 1881.

SIR,—A case is reported in your July number of a person having sued a client for medicine and attendance upon some cows, and that the Judge of the court inquired if plaintiff was a member of the College, etc. He stated that he was liable to a penalty of twenty pounds for every time he acted, not being a member of the College.

Is the Act of 1881 of any service or protection to the qualified member of our profession? Up to the present, I fail to recognise it. There are shoeing smiths in every town, exercising what little skill they possess, in prescribing for horses, and what is more, every quack in the rural districts castrates colts. I am anxious to learn if these several things are contrary to the Act of 1881, and if so, how are such cases to be dealt with? It cannot be expected that members of the College practising in towns will take upon themselves the onus of prosecuting such individuals. May I inquire if the Council will undertake the work, if evidence is given to them? It occurs to me that the College should take some steps to put aside this practice, which could be done by advertising same in the principal newspapers published in such town. Be good enough to afford some information upon this question, and oblige, faithfully yours,

Limerick, *July 3rd.* R. H. DYER.

[The Veterinary Surgeons Act is capable of conferring great benefits upon the profession in the United Kingdom, if the members care to avail themselves of its provisions. In direct proportion as they do so, so will the evils complained of disappear. If our correspondent will refer to clauses 16 and 17 of the Act, he will see the ample powers with which the profession is endowed—powers as great as those possessed by any other profession—for its protection. ED. V. J.]

MR. POTTIE'S REPLY TO MR. ROBINSON.

SIR,—I observe, in the VETERINARY JOURNAL of last month, that Mr. Robinson, Greenock, questions the truth of the statement that I brought the subject of the propagation of Influenza from stallions to mares before the West of Scotland Veterinary Medical Association, and on that account claims to be the first and only one who did so. One of the reasons he advances seems to me rather curious: it is that he is a pretty regular attendant at the meetings. Now some people seem quite satisfied with their annual performance in this respect, if they attend one out of the four. I do not hesitate to include Mr. Robinson amongst such; but suppose he attended double that

number, is it not possible for me to have mentioned this subject in his absence? If it were, his reasoning goes for nothing. It would seem a strange reason for a student to make, who could not answer his professor's questions, to say: "You never lectured on that subject, or I should have heard you, for you know that I am a pretty regular attendant, and have been in attendance at every fourth lecture you gave." That would seem an unreasonable reason. Yet this is Mr. Robinson. But no amount of negative evidence has weight with positive statements. So thus I quote from a letter just received from Mr. Weir, our present President, whose statement can be relied on by the profession. He says: "I distinctly am of opinion that it was from you I first heard of this—Influenza being communicated to mares by stallions—and at one of our meetings."

It is no doubt galling for Mr. Robinson now to find that all along he has been playing second fiddle, and that, while he was communicating his newborn ideas on this subject, some parties were saying, "As usual, Mr. Robinson could kale het again."

Paisley, *July 19th.* ALEX. POTTIE, Veterinary Surgeon.

A QUESTION WORTHY OF CONSIDERATION.

DEAR SIR,—You will perhaps kindly allow me a short space in your valuable Journal, for the purpose of introducing a question highly deserving of notice, and one which I consider, in justice to other veterinary practitioners similarly situated to myself, demands some attention, and ought to have been taken into consideration at the same time that the holders of the certificate of the Highland and Agricultural Society were. There are many reasons and claims the gentlemen I allude to possess of far greater magnitude than what it were possible to adduce on their behalf. For the purpose of illustration, I will refer to my own case, which probably is not an isolated one. If so, so much the better. Session 1855-6, I paid the entrance fee, 21 guineas, and became a student at the Royal Veterinary College. I also joined the Medical Association and Professor Varnell's class. Previous to becoming a student I had seen practice, and was also a member of the Pharmaceutical Society of Great Britain. I attended the lectures, dissection, and hospital practice, and strictly conformed to the rules and regulations of the College, and, without wishing to be thought egotistical, gained considerable favour with the professors, who often told me that the superior knowledge which I possessed of chemistry and materia medica was a great acquisition to a veterinary surgeon. But, unfortunately, through sickness and other unavoidable matters, I was unable to complete the term of probation to become eligible to present myself for examination for the diploma of the R.C.V.S. I some time afterwards wrote to the College, asking to be allowed permission to present myself for examination, but the reply was that my request could not be granted, as it would be an infringement of the rules, and I should have to attend the College for another three months, which I was unable for certain reasons to do. Consequently, I was obliged to rush into practice; for I may here state that, previous to becoming a veterinary student, I had entered into a life-partnership and become *paterfamilias*; and I have now been struggling on in the profession for over thirty years, which, in consequence of not being able to add to my name M.R.C.V.S., has acted as a perpetual brake to my success. I may also state that during this time I have contributed several articles to our local press on various questions relating to the profession; but I have not had the effrontery to do as a certain person, who came some years ago to the town where I reside and commenced practising as a veterinary surgeon, issued his billheads bearing the arms of the R.C.V.S., and member of the Royal College of Veterinary Surgeons, one of which I have at the present time, although

he merely held the certificate of the Highland and Agricultural Society. Under his assumed title he gained appointments and gave evidence before the magistrates in cases, on the presumption that he was what he professed to be; but since then, in the year 1881, he was provided with a diploma of the Royal College of Veterinary Surgeons at a less price than what it cost me to become registered an existing veterinary practitioner, although it is quite possible that he never was within the walls of the Veterinary College, nor that he ever contributed one farthing towards its support beyond the small amount that he paid for his diploma. I do not bear the person the least animus. I merely bring the matter forward for the purpose of shewing the difference betwixt his case and mine, and appealing for an unbiassed opinion as to which is the most entitled to recognition—the one who had paid the fees and been a student at the College, or the one who had not? I do consider that such cases as mine might be put under a practical examination by the payment of a certain fee. I am not appealing on behalf of those persons who have never received any training at the College, but strictly on behalf of such as have been students and are still in practice. Perhaps some abler pen than mine will take the question up, so that it may be thoroughly ventilated.

"A LANCASHIRE V.S."

ANSWERS TO CORRESPENDENTS.

B.—There is no law to prevent any one practising who is not in the Register of Veterinary Surgeons, so long as he does not designate himself by a title which might lead the public to infer that he is registered, but he cannot recover fees in a court of law. See Section 17 of the Veterinary Surgeons Act.

VIGILANS.—We are sorry we cannot give you the particulars.

CORRECTION.—At page 70 of the Journal for July, line 28 from bottom, for "sweating" read "swelling."

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from F. Smith, A.V.D., Aldershot; E. E. Bennett, A.V.D., Aldershot; G. G. Mayor, Kirkham; W. Caudwell, Notts.; F. Somers, Leeds; H. Singleton, Ealing; W. A. Taylor, Manchester; J. Gilmour, Leven, Fife; "M.R.C.V.S.;" R. H. Dyer, Limerick; J. Hunter, Skene, Aberdeenshire; "A Lancashire V.S.; F. L. Gooch, Stamford; R. Rutherford, Edinburgh; R. V. Tuson, London; A. W. Hill, London; J. A. Nunn, A.V.D., Natal; W. D. Fairbairn, Cupar; R. W. Burke, A.V.D., Jubbulpore; P. Beattie, Turriff; F. W. Kendall, Hitchin; W. Ridgman, Liskeard; S. Villar, London; A. Pottie, Paisley.

BOOKS AND PAMPHLETS: *J. G. McKendrick, M.D.*, A Text-book of Physiology: *G. Gresswell*, An Examination of the Theory of Evolution; *L. G. Neumann*, Traité des Maladies Parasitaires; *Dr. H. Möller*, Das Kehlkopf-Pfeifen der Pferde; *Dr. E. Fröhner*, Lehrbuch der Thierärzlichen Arzneimittellehre.

JOURNALS, ETC.: *Journal of National Society of Victoria; Recueil de Méd. Vétérinaire; Hufschmied; Thierarzt; Wochenschrift für Thierheilkunde und Viehzucht; Russian Journal of Veterinary Science; Echo Vétérinaire; Giornale Veterinaria Militare; Clinica Veterinaria; Annales de Méd. Vétérinaire; Archiv. für Wissenschaftliche und Praktische Thierheilkunde; Oesterreichische Zeitschrift für Wissenschaftliche Veterinärkunde; Repertoire de Police Sanitaire Vétérinaire; Live Stock Journal; Lancet; American Live Stock Journal; Edinburgh Medical Journal; British Medical Journal; London Medical Record.*

NEWSPAPERS: *Scotsman; Pioneer; Newcastle Daily Chronicle; Newcastle Daily Journal; Yorkshire Post.*